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THE LATE COLONEL J. DRUMMOND LAMBERT, C.B., F.R.C.V.S.

We regret to announce that Veterinary-Colonel James Drummond Lambert, C.B., F.R.C.V.S., late Director-General Army Veterinary Department, died at his residence in Manchester on March 3, from pneumonia, aged seventy years.

Born June 27, 1835, son of T. Lambert, Esq., of Stretford. Graduated at Edinburgh, 1855; entered the Army October 12, 1857, as Veterinary Surgeon Royal Artillery; appointed to 17th Lancers January 9, 1863; Inspecting Veterinary Surgeon March 12, 1881, and Director-General Army Veterinary Department June 28, 1890. Retired from the Army June 28, 1897.

Colonel Lambert was educated at the Manchester Grammar School, the Alfort Veterinary College, Paris, and the Edinburgh Veterinary College. He was an original Fellow of the Royal College of Veterinary Surgeons, and Life Governor of the Royal Veterinary College, London; President of the Royal College of Veterinary Surgeons, 1891, 1892; Vice-President, 1889, 1890 and 1892, and a member of Council from 1896.

Colonel Lambert served with the 17th Lancers in the Zulu War of 1879, and was present at the engagement of Ulundi (medal and clasp), mentioned in despatches; also served in the Boer War of 1881 as Principal Veterinary Surgeon in South Africa. He was created a Companion of the Bath in 1891. For some years past Colonel Lambert's health had not been good. He was unmarried.

Editorial.

COLONIAL VOTING PAPERS.

AT the present time, by the peculiar methods adopted in regard to the distribution of the foreign and colonial voting papers, a member of our profession who resides away from England is practically disenfranchised, as the only intimation he gets of his right to a vote in the selection of a representative for the Council is a sheet of paper headed "Foreign Voting Paper, issued according to Bye-Law No. 3," and stating that the annual general meeting will be held on June 7, &c., with a footnote to instruct the voter that he must write in the names of those for whom he wishes to vote and the intervening space (intended for the names of the candidates for election) empty and a blank. It is thus that he is expected to exercise one of the privileges given to him by his diploma, and he has no means of knowing who are the candidates or whom he should select.

He has thus just grounds for complaint, and his complaint is a reasonable one. Surely some method can be devised whereby this is obviated. Even if he only knew the names of the retiring members who are willing to seek re-election, he would take some interest in the matter, although this would give a decidedly unfair advantage over the new candidates, for the foreign and colonial voters who even now send in a paper filled in at random (some of the names of which occasionally happen to be the right ones) are numerous enough to turn the scale.

Would it not be possible for the Council to so arrange matters that intending candidates may (or must) officially intimate their desire in this direction at least some three or four months before the actual date of election? The member of Council who will take this matter in hand and see it through will undoubtedly redress a grievance and reap the reward in the shape of the gratitude of his brethren beyond the seas, and a consequent addition to the number of votes appended to his name.

MEDICAL ETHICS.

THE subject of professional etiquette is one which might well receive the attention of the Schools, were it not that one feels that the student has at present as many burdens on his shoulders

as he is able to bear. It is therefore left to him to find out after he has graduated what is or is not the correct thing to do in his relationship to his *confrères* and to professional matters. It is supposed that the ideal of etiquette is contained in the sentence that one should do unto others as one would be done by. The trouble is that even here there is room for varieties of opinion. Unluckily the code of honour which exists in any profession is not bound down by any written laws, and it is only when a man has overstepped the boundary in certain cases that he finds out whether or not he has committed a fault. The final judges of these points to bring the matter to a conclusion are naturally the council of the ruling body. There are practically no points of difference in the relationship which exists between veterinary practitioners towards one another and the relationship between those who practise human medicine. Two extracts in this month's number from the pages of contemporary journals can profitably be brought to the notice of our readers.

One deals with the etiquette existing between the members of the sister profession towards one another, this being practically the same as that existing between ourselves, and the other deals in true American fashion with the practitioner who lowers himself and his calling by systematically advertising and answering a column of queries in the agricultural and canine or lay press relating to diseases in animals he has never seen. That such exist in America as well as in England, is evident by the paper which the author heads "A Remonstrance," and that they are evidently looked down upon, when their names are known, by their brother practitioners against whose interest they work, is equally certain.

Why in both human and veterinary medicine a code of both ethics and fees has never been formulated is, to quote our old friend Lord Dundreary, "One of those things that no fellow can understand." In both branches of the legal profession such matters are provided for and strictly looked after. A barrister or solicitor offending against professional etiquette would quickly find himself brought to book, and one guilty of "cutting" by accepting less than the authorised fee or of touting amongst other men's clients would, after a warning, find himself either disbarred or struck off the Rolls.

It is rare for a member of our profession to be deprived of his diploma, but it would be a great help if some written code of etiquette could be drawn up by the Council, or even if, in the official reports, more details of the proceedings of the Registration Committee were published for future guidance as is the custom of the Councils of the ruling medical, dental, and legal bodies.

A code, or even an elastic framework of this kind, which could be enforced if necessary, would be of unquestionable benefit, and one which would do much to keep the young (and perhaps even the older and well-established) practitioner running within the groove of medical ethics, which teaches him that he should act towards his brother practitioner in the way he himself would be done by.

Original Articles.

ON VARIATION IN THE NUMBER AND FORM OF THE PREMOLARS AND MOLARS OF THE HORSE.

BY O. CHARNOCK BRADLEY, M.B., D.SC., M.R.C.V.S., F.R.S.E.,
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SEEING that the teeth of the horse have undergone marked modification, in more directions than one, during the process of evolution of the animal as we know it to-day; and seeing that modification is still obviously going on (as witness the small size and ephemeral nature of the first premolar), it would be remarkable were there no occurrence of variations in number and size of the teeth. Such variations are far from being uncommon; but, strange to say, they are not generally of such a nature as might reasonably be expected. Variations in number may be grouped into (1) those which indicate a reversion towards the dental condition of a more primitive ancestor, and (2) those the occurrence of which can in no way be satisfactorily accounted for by recourse to palæontological evidence.

The former category includes surprisingly few, if any, recorded cases in the horse. The occasional persistence of a first premolar, either of large or more usual size, beyond the period at which it is usually shed, might possibly be explained on atavistic grounds; but the explanation would not be altogether satisfactory.*

The teeth of the horse which are most subject to numerical variation are the incisors. Of the numerous recorded cases of super-

* That the persistence of a first premolar ("wolf-tooth") much beyond the time at which the animal attains full maturity is uncommon will be generally conceded. In a dissection subject used in the Class of Practical Anatomy here during the present session, and certainly not younger than twenty years, there was a first premolar on the left side of the upper jaw. The tooth was very much worn, and showed only a very slight trace of enamel. On the worn surface was a small area apparently composed of osteo-dentine. I know of no case—though such may have been encountered without being put on record—in which the first premolar has remained *in situ* to so advanced an age.

numerary incisors, Bateson gives a useful summary (1p. 244). These can in no way be referred to as indicative of "throwing back" to a primitive dental condition, for the very earliest mammal at present accepted as an ancestor of the modern Equidæ is *Phenacodus*, from the lowest Eocene division of the Tertiary period; and this animal possessed no more than three incisors on each side. The same number was present in *Hyracotherium*, a lower Eocene ancestor of the horse, common to both Europe and America.

A diminution in the number of incisors, of which several instances have been recorded, naturally cannot be explained as atavistic.

Additional cheek-teeth must also be left out of the atavistic category; for the most primitive ancestor, as yet known, possessed the dental formula so common among the earlier and more generalised mammals, of $\frac{3143}{3143}$.

We are left, then, with only one possible tooth which can show numerical reversion; that is, the first premolar, to which attention will be directed later. It follows, therefore, that numerical variation of equine teeth must of necessity be mainly spontaneous, and not connected with ancestry.

Variations in the form and size of the horse's teeth have not received any very careful consideration, though there is a strong probability that such variation, if detected, would be pregnant with interest; since Klever (2) has shown that the horse, during the development of the upper milk-premolars, passes through two stages, which he designates Paloplotherioid and Merychippoid.

The only tooth in which marked variation in size is generally recognised is the canine.

In the present communication attention will be confined to numerical and form variation of the premolars and molars: and only variation in number resulting in an addition to the dental formula will be considered. The data are too scanty and unsatisfactory for any definite statement to be made regarding variation due to numerical defect.

In connection with numerical variation in the molar teeth of the horse, the statement that the occurrence of a fourth molar is rare is generally accredited. Recent experience, however, goes to show that the rarity of a fourth molar has been overstated. Since 1892 three specimens have passed through my hands; these forming a goodly share of the total of seven occurrences in the horse and one in the ass, of which particulars have been published. Recently another and exceedingly rare example came into my possession. It was presented Mr. F. T. Harvey, F.R.C.V.S., of St. Colomb, Cornwall, to whom my grateful thanks are due. The specimen consists of an entire skull, in good preservation, and has been commented upon, from the clinical aspect, by Mr. Harvey himself (3).

As stated above, the specimen is an exceedingly valuable one, which circumstance, conjoined with the reputed rarity of the condition it illustrates, forms sufficient justification for the publication of details concerning it. The following are the features of the dental series to which it is desired to draw attention.

Maxillary teeth.—All the incisors are present, and show no abnormality either in number or form. The site of the canines is indicated by two small and shallow alveoli, occupying the customary

position relative to the incisors, from which the teeth themselves have disappeared.

On the left side there is a well-developed first premolar, roughly conical in form, with an apex showing marked evidence of wear. Its position is that usually occupied by a first premolar when present; that is, it is placed close up to the second cheek-tooth. On the right side of the skull the first premolar has been lost, and its alveolus indicates that it was of considerable size. The greatest diameter (antero-posterior) of the tooth-socket measures 15 mm., its transverse diameter being 7 mm. If the alveolus be taken as a criterion of the dimensions of the tooth it formerly contained, it is clear that here was a first premolar of a development exceeding that ordinarily encountered. The tooth was apparently shed in the usual way, since the alveolus is only 5 mm. deep at its deepest part. The position of the alveolus offers the most remarkable feature (fig. 1). Instead of being closely adjacent to the second premolar, it is separated from it by a distance of 18 mm. This circumstance led one, on first examining the specimen, to question whether the alveolus was that of the first premolar or of another (additional) tooth altogether. The absence of even the faintest indication of the remains of an alveolus close to the second premolar, however, justified one in the assumption that here is an example of an abnormally placed first cheek-tooth. The feature is of some interest, since in some of the ancestors of the horse there existed an interval between the first and second premolars. This is well illustrated in *Hyracotherium venticolum* (Cope).

The remaining premolars show no features on inspection which distinguish them from the similar teeth of a normal series. The molars are four in number on both sides, symmetrically arranged and developed. Concerning the first and second no remarks are called for. The third differs in a very small degree from the normal third molar, and that only in its posterior surface being very slightly flatter than usual. This fact is worthy of special notice. In the case of a *m.*4 which I have already described (4), the third molar resembled a normal second molar very closely in size, in shape and in the character of the "pattern" on its wearing surface. The recorded case and the one now being described evidently illustrate two conditions which may be found when an extra molar is added at the end of the series. In the former case the abnormal penultimate takes on the characters of a normal penultimate; in the latter it retains the features of the normal ultimate tooth.

The fourth (supernumerary) molar tooth, on both sides, though apparently of good size, is only partly visible. The more posterior part is hidden by bone (fig. 1). That part which is visible on the surface of the macerated skull was, no doubt, covered by the gum in the living animal.

Mandibular Teeth.—The incisors present no features of interest. They are six in number, and of normal form and size. The canines are just visible on the surface, the left slightly more so than the right. It is clear that they had not cut the gum. The main point of interest refers to their position. The right occupies an alveolus placed at the normal distance from the third incisor. But the left is close up to its neighbouring incisor (fig. 2).

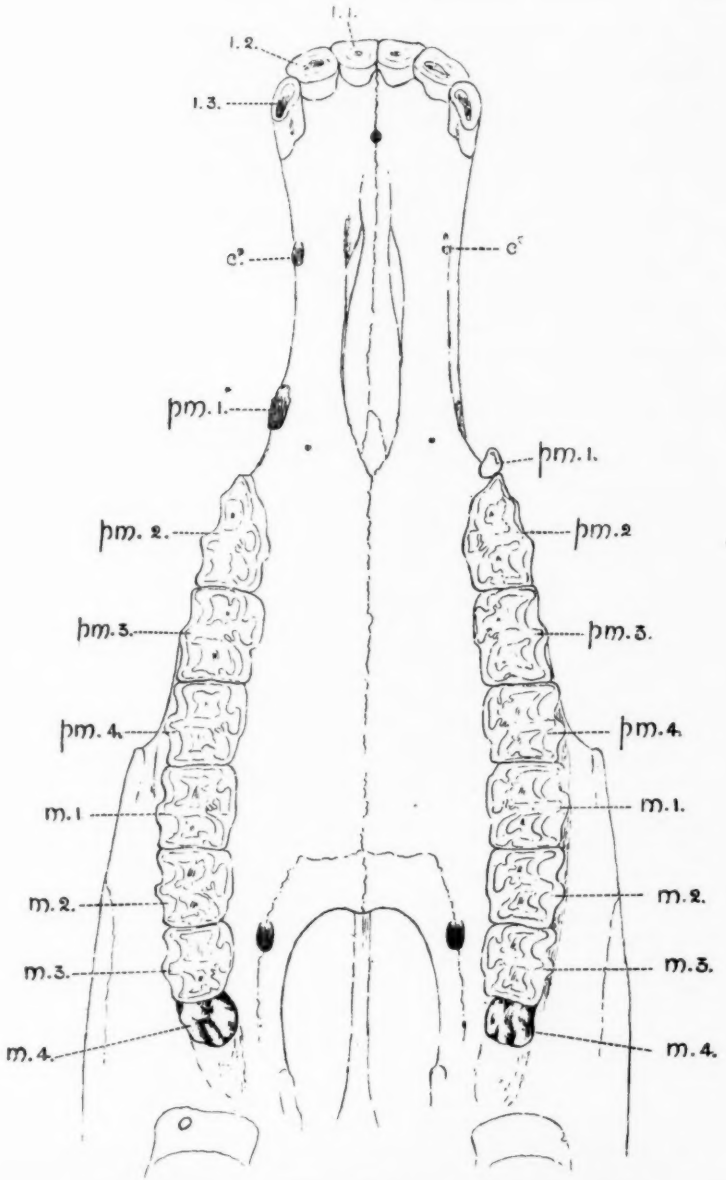

FIG. 1.—ABNORMAL DENTITION OF HORSE. MAXILLARY TEETH.

i.1., i.2., i.3, = Incisors. c*, = Alveoli for canines. pm.1.,* = Alveolus for right first premolar. pm.1 = Left first premolar. pm.2, pm.3, pm.4, = 2nd, 3rd, and 4th premolars. m.1, m.2, m.3 = 1st, 2nd, and 3rd molars. m.4 = 4th (supernumerary) molar.

There is nothing remarkable in the premolars or the first and second molars. The third molar on the left side has the ordinary form and size, but the presence of an extra tooth behind it produces a slight degree of rotation of its posterior end towards the mesial plane. The fourth molar invades the ramus of the mandible. It is somewhat smaller than the last molar of a normal series, and its "pattern" is modified in its anterior part and defective posteriorly (fig. 2).

On the right side, unfortunately, the third and fourth molars are absent, having been removed surgically during the life of the animal. So far as can be judged from their alveoli, they were very similar to the corresponding teeth on the left.

In this specimen, as in two others already recorded ([5]), *m*.3 does not differ in form from the normal tooth in the same position. The inward rotation to which it has been subjected has been previously encountered in a more marked degree in the two mandibles previously described. The occurrence of the displacement of the tooth in the lower, and the absence of any rotation of the tooth in the upper jaw, can be accounted for by the limitations of the space in which the supernumerary tooth had to grow, owing to the presence of the ramus of the mandible, and the absence of any corresponding impediment in the upper jaw.

It will not be out of place to call attention to the circumstance that, in all recorded cases of additional cheek-teeth in the horse, the extra tooth has been found at the posterior end of the series. Furthermore, though the first premolar in the upper jaw may have been larger than usual, its presence in the mandible has not been remarked. That a mandibular first premolar is occasionally present in normal dental series may be taken for granted, although its presence is probably much less common than the figures given by Nehring ([6]) would lead one to suppose. Nehring (quoted by Salensky) states that, out of fifty-seven skulls of domestic horses, ten contained a first premolar on both sides in the upper and lower jaws. Salensky ([7]) was not so fortunate, for in only one single specimen—the skull of a young ass—among all the skulls of the Equidæ (including *Equus Przewalskii*) examined by him was a mandibular first premolar present. In all the young specimens of the wild horse (*E. Przewalskii*) which he investigated an upper first premolar was found.

Among the zoologists of this country who have interested themselves in the modern horse and its ancestors, the prevalent view is that a first premolar in the lower jaw is never present. Lydekker ([8]), for example, in comparing the Pliocene species with the horse of to-day, and speaking of the first premolar, says: "They (the Pliocene species) occasionally developed the corresponding lower tooth, which is quite unknown in the latter (modern horse)."

It seems, then, that the occurrence of a supernumerary tooth at the posterior end of the series, and the absence of such a structure at the anterior end, coupled with the not more than slight increase in size of the maxillary first premolar and no incidence of a corresponding mandibular tooth, strengthens the ground for the contention that all the recorded cases do not illustrate reversion. The explanation which I have previously advanced, and one recently concurred in by Prof. J. T. Wilson ([3]), namely, that these cases are consequent upon the

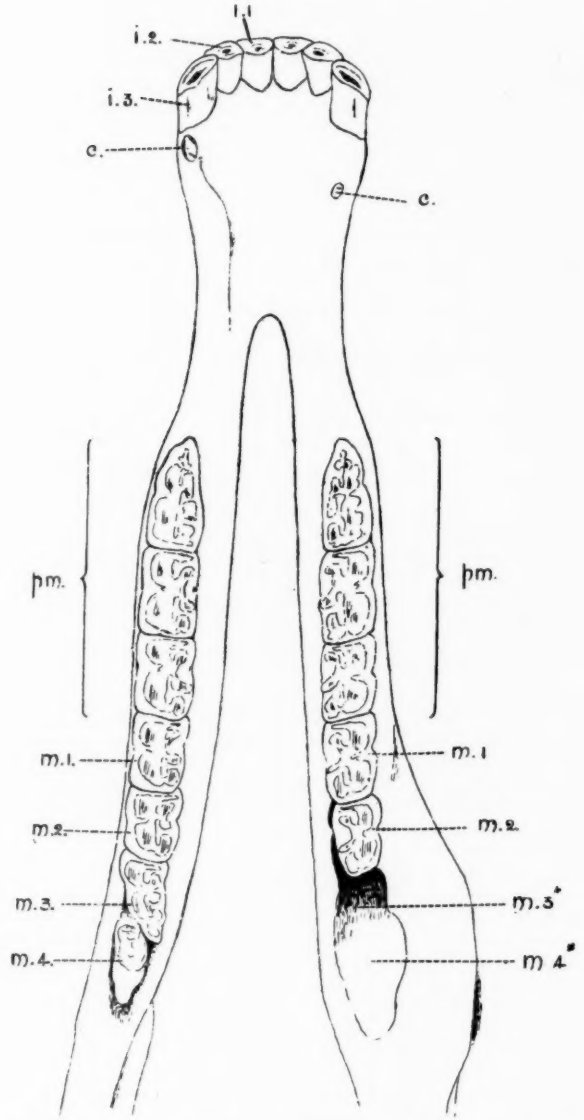

FIG. 2.—ABNORMAL DENTITION OF HORSE. MANDIBULAR TEETH.

i.1, i.2, i.3, = Incisors. c. = Canines. pm. = Premolars. m.1, m.2, m.3, = 1st' 2nd, and 3rd molars. m.3* = Alveolus for right 3rd molar. m.4 = Left 4th (supernumerary) left molar. m.4* = Alveolus for right 4th (supernumerary) molar.

formation, at the posterior end of the dental lamina, of one tooth-germ in excess of the normal number, still appears to be the most probable.

Although, as Salensky has demonstrated, there is no very great difference in the general form of the cheek-teeth of the various species of *Equus*, there is nevertheless a considerable amount of variation in the details of these teeth even in the same species. This has been impressed upon me as the consequence of careful measurements of the length and breadth of the wearing surface of the premolars and molars of the horse. The series of skulls upon which such dimensions have been observed is unfortunately rather small, since only those in which the teeth could be considered as having suffered little on account of prolonged wear have been deemed suitable. The results, as here stated, therefore, are to be considered as only forming a nucleus about which might be gathered additional material in illustration of variations of tooth-form in the horse. Pressure of other work precludes me from following out the investigation farther at the present time. It may be, however, that someone else may have the time and material at his disposal. Although the number of teeth which have been measured is not sufficiently large to satisfy the requirements of those who are engaged in the modern methods of biometric research, the mean error of the series, as computed by statistical methods, is small enough to encourage one in the hope that the general conclusions are reliable.

The method of making the measurements was that previously adopted (5). The length and breadth of the wearing surface of the teeth was carefully taken by means of graduated calipers. In all cases the outer layer of cement was neglected, since it varies very much in different animals, and even in different teeth in the same animal. Moreover, an increase in the amount of cement adds to the breadth of the tooth only; its length is not affected. For these reasons the outer layer of enamel has been used in taking the two diameters.

Since absolute measurements are of little, if any, value in observations of this kind, an index has been computed for each of the teeth examined. This was done by the same method as that formerly employed; that is, the length of the tooth-surface was taken as 100; the index showing what proportion the breadth of the wearing surface bears to 100, according to the following formula :—

$$\frac{\text{Breadth of tooth} \times 100}{\text{Length of tooth.}} = \text{Index.}$$

It would occupy too much space, and serve no good purpose, to give a detailed account of the measurements of all the teeth examined. The results are therefore summarised in the following table (Table I.), in which the highest, the lowest, and the average indices are given for the various teeth on the two sides of the head separately and combined. It will be evident, from the constitution of the formula according to which they have been computed, that the highest indices demonstrate those teeth whose wearing surface is broadest in comparison with its length, or, conversely, the lower the index the longer the tooth.

Obviously, and naturally, the above table contains certain information which it would be possible to gain by the eye alone. But, in addition, several points are brought out which could not have been

TABLE I.

	Tooth	Number of teeth examined: Right	Left	Total	Indices: Right: Highest	Lowest	Average	Left: Highest	Lowest	Average	Combined: Highest	Lowest	Average	Variation of Indices
Maxillary.	p.m. 2	10	11	21	71·42	59·37	66·55	71·42	60·24	66·00	71·42	59·37	66·23	12·05
	p.m. 3	11	12	23	93·00	86·20	91·56	96·66	84·84	91·70	98·00	84·84	91·63	13·16
	p.m. 4	11	12	23	109·09	87·09	96·92	109·09	90·32	97·29	109·09	87·09	97·11	22·00
	m. 1	11	12	23	113·63	90·32	103·13	114·28	90·32	103·49	114·28	90·32	103·32	23·96
	m. 2	10	11	21	111·36	86·66	98.88	106·78	83·86	98·77	111·36	83·86	98·79	27·50
	m. 3	9	10	19	96·29	71·87	81·23	93·33	74·07	82·36	96·29	71·87	81·82	24·42
Mandibular.	p.m. 2	10	10	20	60·60	48·48	53·26	59·37	48·48	53·40	60·60	48·48	53·33*	12·12
	p.m. 3	10	10	20	80·00	58·62	69·00	76·00	60·71	69·50	80·00	58·62	69·25	21·38
	p.m. 4	10	10	20	85·18	62·06	70·73	80·76	64·28	72·18	85·18	62·06	71·45	23·12
	m. 1	10	10	20	80·95	66·66	71·46	84·00	66·66	71·50	84·00	66·66	71·48	17·34
	m. 2	10	10	20	70·83	60·71	66·26	80·00	55·55	66·22	80·00	55·55	66·24	24·45 (15·28)
	m. 3	10	10	20	53·33	43·33	48·73	53·33	44·11	47·99	53·33	43·33	48·36	10·00

* In consequence of a printer's error, this index appeared as 52·33 in *Anatom. Anzieger.*, Bd. 24, p. 117.

demonstrated otherwise than by accurate measurements and their subsequent reduction to indices. An inspection of the figures reveals features of distinction between the various teeth.

In the maxillary (upper) series of cheek-teeth, *m.*1 is clearly the shortest. On an average it is rather broader than long. Its two neighbours, *p.m.*4 and *m.*2, are slightly longer, the outline of their wearing surface closely approximating the square. The second premolar (*p.m.*2) is far and away the longest tooth of the series, the second longest being *m.*3, which is relatively much longer than *p.m.*3. Arranged in order from the longest to the shortest, the upper cheek-teeth stand as follows:—

Longest ——————→ *Shortest.*

*p.m.*2, *m.*3, *p.m.*3, *p.m.*4, *m.*2, *m.*1.

The last column of Table I. contains information which is possibly of greater interest than that attaching to the relative size of the different teeth. It indicates the amount of variation which may be found in the corresponding teeth in different animals, and it was to obtain some sort of idea of this that the investigation was undertaken. It will be noticed that *m.*2 shows the greatest range of variation in its index; *m.*3 standing second. Anterior to *m.*2 there is a gradual decrease in variability of form; *p.m.*2 being the most constant tooth in the series. This is perhaps best shown in the following manner; the asterisk standing over the most variable tooth, and the arrows showing the direction of decrease of variability:—

←—— * ——————→

*m.*3, *m.*2, *m.*1, *p.m.*4, *p.m.*3, *p.m.*2.

The mandibular tooth-indices show very clearly that the lower teeth do not agree with the upper in form or in local peculiarities. That all the indices should be below 100 could only be expected from even a casual examination with the eye. The circumstance that the lower teeth are narrower than the upper is too commonplace to dwell upon. What, however, is not obvious on inspection is the different position occupied by the longest, shortest and intermediate teeth in the upper and lower arcades. The only point of agreement between the two series is that *m.*1 is the shortest tooth in both. Its neighbour, *p.m.*4,

is of the same relative form. In the mandible the most posterior tooth *m*.3, is the longest; whereas in the upper jaw the longest is the most anterior (neglecting, for the moment, the small first premolar).

Arranging the teeth as before, they occupy the following positions :—

Longest——————→*Shortest.*

m.3, *p.m*.2, *m*.2, *p.m*.3, *p.m*.4, *m*.1.

Again, a more important feature is the amount of variability in the form of the various teeth. In striking contrast to what has been shown above as occurring in the maxillary teeth, the most variable mandibular tooth is one placed more anterior in the series. The fourth premolar is easily the most variable; for, though the table shows *m*.2 to have a greater range, this is due to an isolated example in which this tooth had an index as high as 80 on the left side. The next highest index for *m*.2 was 70·83. If, then, the extraordinarily high index of 80 be taken as exceedingly unusual, as seems to be the case, and we substitute 70·83 as being more usual, the range of variability of *m*.2 is reduced to 15·28. Now the variability of the mandibular teeth is found to decrease both in front of and behind *p.m*.4, as can be thus indicated :—

←————— * ————→

m.3, *m*.2, *m*.1, *p.m*.4, *p.m*.3, *p.m*.2.

It does not appear advisable, with the comparative paucity of data at our disposal, to erect any theories of causation upon the facts as given above. As previously stated, more observations are needed.

When additional teeth are developed, and more especially when the supernumeraries are arranged regularly in the series and do not materially differ in form from normal teeth, it is always of interest to observe if the representatives of the normal members of the series in any way exhibit modifications. As already stated, the premolars and the first three molars of the specimen which is the immediate cause of the present communication, did not exhibit any features on inspection by which they could be distinguished from the corresponding teeth of a normal series. In order, however, to test this conclusion, measurements of their wearing surfaces were made and indices computed by the same method as that employed for normal teeth. The following table (Table II.) shows these indices side by side with the average normal indices.

TABLE II.

		Indices of abnormal specimen		Average normal indices
		Right	Left	
Maxillary.	p.m. 2	70·27	67·56	66·23
	p.m. 3	100·00	96·55	91·63
	p.m. 4	100·00	100·00	97·11
	m. 1	111·53	107·69	103·32
	m. 2	100·00	100·00	98·79
	m. 3	92·30	92·30	81·82
	m. 4	Not measurable.		
Mandibular.	p.m. 2	53·12	53·12	53·33
	p.m. 3	71·42	71·42	69·25
	p.m. 4	70·37	71·42	71·45
	m. 1	72·00	65·38	71·48
	m. 2	69·23	69·23	66·24
	m. 3	Missing	48·48	48·36
	m. 4	,,	52·17	

With one exception, the indices of the abnormal dentition are well within the range of the normal indices. The one exception is that of the right third upper premolar, the index of which worked out at 100; whereas the highest index of the corresponding tooth from a normal series was 98. The difference, however, is obviously not excessive. In conclusion, therefore, it may be said that, though an extra tooth has been added to the posterior end of the series, the addition has not resulted in any appreciable modification in the form of the representatives of teeth normally present. Nor, in the upper jaw, is there any variation from the normal in the position of these teeth. In the lower jaw the third molar has certainly been somewhat crowded out of the true line of the row, but this can be readily accounted for by the limited accommodation resulting from the presence of the ascending ramus of the mandible.

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AN INTERESTING CASE OF TUMOUR IN THE VAGINA OF A HEIFER.

BY R. R. WAGHORN, V.S., EDENBRIDGE.

I was called in a hurry to a heifer which had been in labour all night. Upon examination I found that I could only pass two of my fingers into the passage, as the opening was nearly closed. Upon further examination I discovered, just inside the vagina, a mass of hard tumour tissue which I had to cut away before I could find the calf. Upon passing my hand towards the uterus, she strained very violently, and in the effort ruptured the membranes. The calf had both forelegs turned back. I placed them in position, and, after a little manipulation, got the fœtus away. A second calf was felt and extracted without difficulty, both being still alive and doing well. The heifer lost a good deal of blood, and I disinfected her most carefully with antiseptic. The progress since has been almost uneventful. The animal was a shorthorn and a little over two years old. The tumour was examined by Professor MacFadyean, who proclaimed it to be papilloma. It weighed four ounces, and was about as large as an orange, its external surface being lobulated. There is no evidence of contagion from the bull, as this animal has been carefully examined since and is quite clean.

EXTRAORDINARY PASSAGE OF TAPE THROUGH A CAT'S INTESTINE.

BY T. G. HEATLEY, M.R.C.V.S., WOODBRIDGE.

THE patient was a blue Persian cat, aged two years, the property of a lady, and the animal spent the first year of its life in St. Bartholomew's Hospital, London. It never looked in good condition, and was on this account sent into the country, where its health improved very much. Four days before its death it seemed dull and out of sorts, preferring to get in a dark place, refusing all food, and only lapping a few drops of cold water. At intervals it made attempts to vomit, but only brought up a little greenish fluid. The owner had administered two doses of castor oil without result. When brought to my infirmary the animal could scarcely stand; saliva was dribbling from the mouth, and it was in a state of semi-coma. Examination *per rectum* revealed nothing. Suspecting a foreign body, but knowing that the owner had administered castor oil, I merely gave an enema (which it resented very much), and awaited developments. I found the patient dead the next morning.

Photograph showing the cat's intestine, with a piece of sewing-tape passing from stomach to rectum.

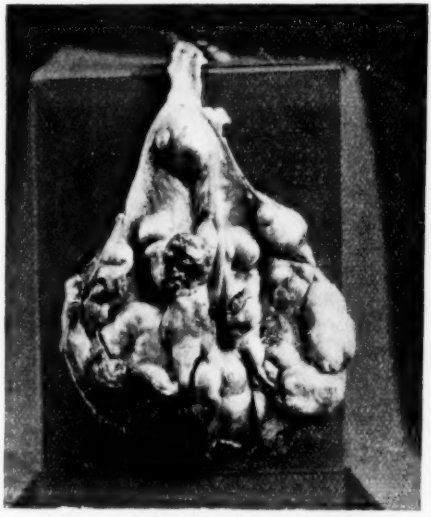
Post-mortem examination revealed the bowels to be slightly congested and with a curious puckered appearance.

Upon further examination I found about three inches of ordinary sewing-tape projecting into the stomach through the pyloric orifice, and upon tracing this up I found that it was continued down the intestine to within about five inches of the anus. The photograph shows the tape *in situ*. It is particularly remarkable that it should have worked its way so continuously and so far down the gut.

MULTIPLE FIBROMA IN THE VAGINA OF A BITCH.

BY FRANK AULTON, M.R.C.V.S., TUTBURY, AND FREDERICK HOBDAY, F.R.C.V.S., KENSINGTON.

THE patient, a retriever bitch, eight and a half years old, never showed any real sign of constitutional disturbance. It was noticed by the keeper that "something was forming" as far back as June last. Exactly twelve months before (June, 1903) she was mated, but did not have any puppies. This was the only time she had been served. When received into hospital for operation at the end of January last, a portion of tumour, fully as large as a cocoa-nut, was protruding from the vagina. Digital examination revealed a collection of tumours on the



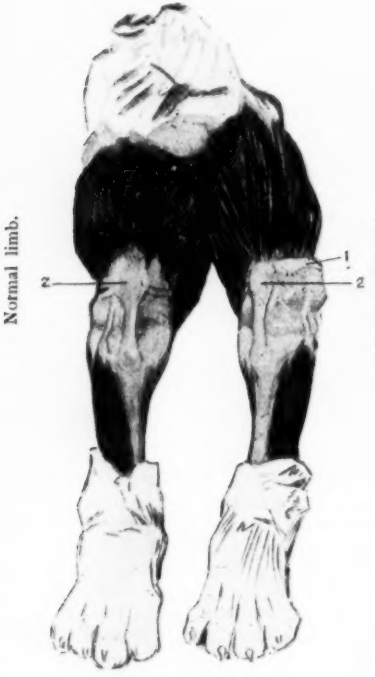
Photograph of multiple fibroma of the vagina.

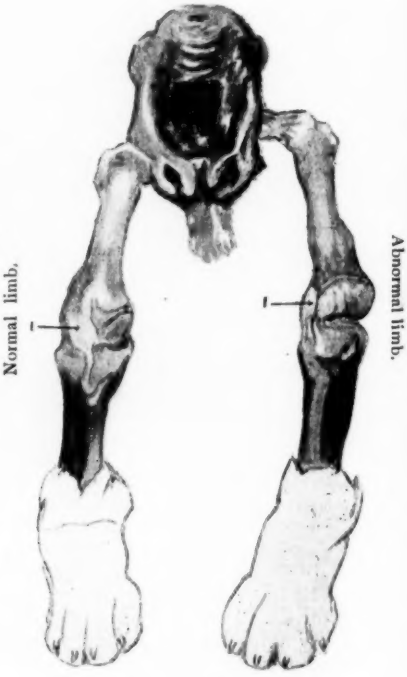
mucous membrane, some of them being as large as walnuts. The patient was chloroformed, an incision was made in the upper part of the vulva and the tumour enuculated through this wound. Unluckily, in clearing away the extremity of the diseased mucous membrane, it was found necessary to enter the abdomen, as the growth had spread up to the body of the uterus, and a portion of this organ was ligatured and removed. The bitch never seemed to thoroughly rally, and died about thirty hours later. The extent of the growth is well seen in the illustration, and the weight was six ounces. It was microscopically examined and proved to be a multiple fibroma.

CONGENITAL MALFORMATION AND DISPLACEMENT OF THE PATELLA JOINT IN THE DOG.

BY FREDERICK HOBDAY, F.R.C.V.S., F.R.S.E., KENSINGTON, W.

THIS condition is one which is very commonly met with in dogs, especially those of the bull-dog and Japanese breeds. Other breeds are by no means exempt, and the author has seen it in Manchester terriers, griffon, and several others. It is characterised by a peculiar dragging movement during progression, the stifle joint being jerked slightly outwards when the animal moves. When standing still the deformed leg will be held a little posterior to the other one. It is most troublesome to treat, and it is comparatively rare, when it is congenital, that a cure can be effected. Bandages, stimulating applications, sedative lotions, massage, and other remedies may act beneficially in a small proportion of cases, but, as a general rule, the treatment has ultimately to be given up as futile.





CONGENITAL MALFORMATION OF THE PATELLA JOINT IN A BULL PUPPY.

FIG. 1.—Dissection showing the muscles and patella ligaments. (1) External lateral patella ligaments. (2) Patella.

FIG. 2.—Dissection showing the normal and malformed bones. (1) Patella, showing position in the normal and the abnormal limbs respectively.

For the accompanying sketches I am indebted to Mr. Duncan, M.R.C.V.S., of the Irish Veterinary College, and, for the technical description of the normal and abnormal anatomy, to Professor Craig, M.A., M.R.C.V.S., of the same school. The subject sent to them was the body of a bull puppy, about two months old, which had been sent to me from the country. The history plainly showed that the trouble was present at birth, although it was not observed until a few days afterwards. The little animal had the characteristic limping gait, the joint being distinctly deformed. Upon manipulation the malformation of the patella joint could be distinctly felt. For a month or more various treatments were tried without success, and unluckily an attack of distemper ended the life of the patient.

In both sketches the normal and abnormal limbs are shown side by side.

Professor Craig says as follows: "In fig. 1 the skin and subcutaneous fascia have been removed, as well as the muscles which hid from view any of the ligaments of the stifle joint in front or at the sides. The patella (2) in the abnormal limb is completely luxated inwards and the external lateral patella ligament (1) has become elongated to permit of this luxation, and is stronger and thicker than any of the other lateral patella ligaments in the dissection. The inner side of the femoral trochlea of this stifle also is prominent and rounded from side to side. This abnormality permits of a certain amount of rotation of the joint which is not allowed in the normal stifle. It, however, does not account wholly for the great freedom of movement of the whole limb.

"On more careful examination, the hip-joint of the affected limb appeared to be very different from that of the normal limb, and the former seemed to be less closely connected with the innominate bone.

"In fig. 2 the muscles and associated soft tissues were cleared away from the thigh and hip, and the ligaments of the coxo-femoral joint examined. The capsular ligament in the abnormal joint is much longer and stronger than in the normal limb. To show this appearance in the sketch, the femur was drawn out from the innominate bone, and the capsular ligament put on the sketch. In any case, the head of the femur is usually situated outside of the cotyloid cavity. The lesion in the hip-joint is, therefore, also of the nature of a complete luxation.

"Afterwards I removed the capsular ligament of the joint, and found that no round ligament (*ligamentum teres*) was present in the joint of the abnormal limb.

I am of opinion that the chief lesion in this interesting case lies in the hip-joint. The want of a ligamentum teres will, no doubt, account for the bad results obtained in the treatment of such conditions. It appears also reasonable to suppose that, on account of the freedom of movement permitted at the hip-joint, the crural muscles were unable to maintain the necessary tension of the patella, the patellar ligaments were slackened, and the patella allowed to slip out of the trochlea."

In the subject from which fig. 3 was taken, the patient was a Japanese puppy, four months old, and the abnormality was congenital. Various treatments, bandaging, &c., were tried, but all proved unsuccessful, although some slight improvement in the gait was perceptible. The animal succumbed to an attack of distemper, and the dissection

Abnormal limb.

revealed (as illustrated in the sketch) an entire absence of trochlea ridges on the front of the lower extremity of the femur.

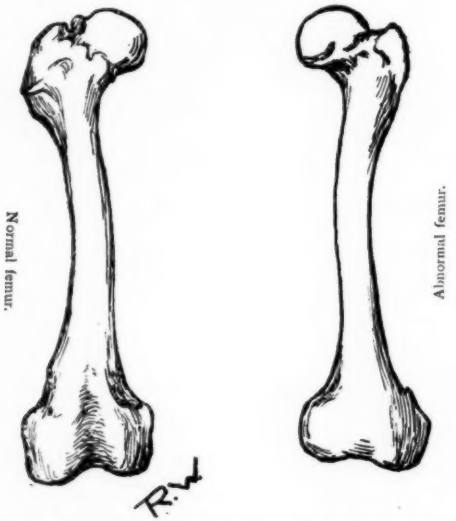


FIG. 3.—Sketch of normal and abnormal femora of a Japanese puppy, showing entire absence of trochlea ridges in the abnormal limb.*

SOME CLINICAL NOTES.

BY CAPTAIN W. A. PALLIN, F.R.C.V.S., F.R.S.E., A.V.D.

A CASE OF MESENTERIC ABSCESS DUE TO STREPTOCOCCIC INFECTION.

CASE I.—Subject, a brown mare, aged four years, purchased in Ireland and issued to the Service on July 19, 1904. This case first came under my care on October 5, 1904, when she was found to be suffering from general symptoms of ordinary debility following on a severe attack of catarrhal fever, for which she had been under treatment from August 4, 1904, to September 1, 1904. The mucous membranes were pale, and she was in very poor condition. The appetite was gone, and treatment consisted of extra feeding, boiled food, a comfortable loose-box, and gentle exercise, together with febrifuges, stimulants and tonics as required. In the course of a month, as the case still continued in very poor condition and was continually lying down, occasionally showing symptoms of some internal and slightly intermittent pain, a mesenteric abscess was suspected, and as the symptoms described above continued and an unfavourable prognosis was finally arrived at, her destruction was

* For this sketch I am indebted to Mr. Reginald Ward.

recommended. This having been affirmed, the patient was destroyed on February 18, 1905, and the following were the *post-mortem* appearances: General character of chronic anæmia throughout, and on opening the abdominal cavity a large fibrous, tumour-like growth was found to exist, enveloped in the mesentery and also firmly adhered to several folds of the large and small intestines. It was situated principally in the region of the diaphragmatic flexure, and great difficulty was experienced in dissecting it away from the surrounding intestines and mesentery. The growth when cut into was found to consist of dense fibrous tissue, permeated and intersected in all directions by sinuses containing large quantities of creamy kind of pus, which on microscopical examination was found to contain large numbers of streptococci, together with various other pus organisms. The former were easily stained by Gram's method and resembled those of strangles. The whole growth, after having been dissected out, was found to weigh 18¼ lb.; it was more or less oblong in shape and measured 12 in. by 6 in. by 6 in. Added to this several patent openings or fistulæ were found in the mucous membrane of both the small and large intestines communicating with the sinuses in the growth. The mucous membrane of the intestines was greatly thickened and congested throughout, and from the abnormal thickness of the rugæ the mucous membrane had a marked corrugated appearance, particularly in the neighbourhood of the patent openings already mentioned. The remaining internal organs were found to be fairly healthy under the circumstances, and microscopical examination of the blood previous to death had exhibited a large increase in the normal number of white blood corpuscles. The temperature chart, which I kept complete from November 5, 1904, up to the day the case was destroyed, showed continual variation between 98·8° and 101·8°, and was of some considerable interest, scarcely ever remaining constant for even two successive days. I might mention that the periods when symptoms of internal pain were most marked corresponded almost invariably with the rises in temperature, and also that strangles was persistent at the time the case was first admitted under treatment.

Fracture of the Lumbar Vertebræ.

Case II.—The subject was a chestnut mare, aged five years, and was being ridden over a narrow bank. From the account received it appears that she chested the bank and turning a complete somersault landed on her croup in the ditch at the far side. On recovering her feet the back became arched, and a swelling across the loins extending back over the croup rapidly appeared, from which it was apparent that considerable effusion was taking place. She exhibited considerable stiffness on being moved, but this more or less passed off after walking a few yards, and the case was led back to barracks, a distance of about three miles, when she was put in a loose-box and hot fomentations and stimulating liniment applied. On the following day, the 18th inst., the case was found to be progressing satisfactorily. The swelling over the loins and croup still remained, and, although she had not laid down during the night, she seemed quite easy and walked round the box without showing any very marked stiffness or any symptoms of injury to the cord.

19th inst. Case much the same. Continued treatment.

20th inst. The case dropped down suddenly early this morning, and as complete paralysis of the posterior extremities almost immediately supervened, combined with symptoms of great pain, there was little difficulty in recognising that effusion into the spinal canal had taken place, and that the vertebræ, which up to the present had been held together by the muscles and ligaments, had now become separated, so the case was destroyed immediately.

Post-mortem examination revealed a comminuted fracture of the fifth and sixth lumbar vertebræ with displacement; laceration of the cord, and extravasation of blood into the spinal canal of the lumbar and sacral regions, together with extravasation of blood into the muscles and tissues of the part and rupture of the ligaments between the fifth and sixth lumbar vertebræ.

Fifth lumbar vetebra: comminuted fracture of the posterior portion of the arch, a small piece out of the floor of the canal, together with almost complete destruction of all the posterior articular surfaces except the left transverse.

Sixth lumbar vetebrra: facture of the base of the spinous process. Comminuted fracture of the arch, a large piece out of the floor of the canal and off each transverse process, and more or less complete destruction of all the anterior articular facets.

Second sacral vertebra: fracture of the base of the spinous process of the same.

Fracture of the Radius.

Case III.—The subject was a chestnut mare, aged six years. The injury was the result of a kick, and the wound was situated on the front of the forearm about 3 inches above the knee-joint. On examination a fracture was easily discernible, but as it appeared to be a case that might be amenable to treatment and was close to the infirmary stables at the time of the accident, it was decided to give the patient a trial. The animal was put in slings and the wound was treated with antiseptics, after which fomentations were applied to allay the pain and inflammation, followed by the application of temporary splints and bandaging, and more antiseptics.

On the following day, the 14th, the case was found to be quite comfortable in slings and apparently progressing favourably; so, with the exception of keeping the wound well syringed out with antiseptics, the case was not interfered with.

15th inst. The forearm was slightly swollen, otherwise the case appeared to be progressing favourably.

16th inst. As, comparatively speaking, very little inflammation had developed and there was very little discharge from the wound, further treatment was decided upon. A plaster of Paris bandage was applied round the forearm and knee, followed by the application of muslin bandages and pledgets of tow, and then a thin wooden splint on the back of the leg reaching from just below the elbow to the ground. The bandaging over the knee was done in a figure of 8 so as to leave the wound exposed for the free exit of any discharge, and in order that it could be dressed as often as necessary without removing any of the bandages. And the whole thing when complete appeared to have the limb well fixed in position and certainly promised to be effective.

XUM

17th inst. Case doing remarkably well. There is no fever and no uneasiness from the tight bandaging, and limb appears to be nicely fixed and keeping in position.

20th inst. Case continuing to do well. There is very little discharge from the wound, and the animal is almost inclined to put some weight on the limb.

25th inst. There is a good deal of swelling about the forearm and knee to-day and an increased discharge from the wound.

27th inst. The swelling of the forearm has increased tremendously, and is now extending to the elbow and chest. Temperature has gone up rapidly. There is a further increase in the amount of discharge, and the case is not doing as well. Treatment: explore the wound, enlarge the opening, and remove some small spicules of bone.

March 4. The above symptoms having become greatly aggravated, the bandages and splints had to be removed, when it was owing to the extensive nature of the fracture that it had been impossible to keep the parts in apposition and fixed. Further treatment being now useless, the case was destroyed.

The *post-mortem* examination revealed a compound comminuted fracture of the right radius, the shaft of the bone being fractured obliquely into the knee-joint in front, and running upwards and backwards terminated posteriorly at the distal end of the ulna; the portion forming the inverted apex of a triangle in front being further fractured into eight pieces of varying size, from a small fragment up to an oblong piece measuring 2 in. by 1½ in. Considerable deposition of new bone had already begun to form round the fracture, but it was impossible to avoid the constant movement which it was now apparent had existed all the time, as portions of the fractured surfaces were already found to be getting polished instead of knitting together.

There was also considerable suppuration extending in between the muscles and subcutaneous fascia of the forearm from the fracture.

The temperature chart of this case was interesting as showing how little this animal was affected by this extensive injury up to fourteen days after it had been received.

On February 13 the thermometer registered 99·8°, and it varied between this and 100·8° until the 25th, when it went up to 101·6°; it was down on the 26th to 100·4°, when it suddenly went up to 103·6°, falling to 102·4° on the 28th, and oscillating between this and 101·4° until March 4, when the animal was destroyed.

A MALIGNANT TUMOUR ON A CAT'S NOSE.

BY A. H. TOWNE, M.R.C.V.S., STOKE NEWINGTON, N.

THE subject of the illustration was a female cat, aged four years, and was brought to my infirmary on February 15, with the following history. The animal had been in the owner's possession two and a half years and had always been in good health until January, 1904, when he noticed a small swelling on the outside of the nostril. This had gradually increased in size, until at the present time it showed the deformity illustrated in the photograph and was now quite as large as a filbert nut.

Being quite sure that operative interference would be futile, I persuaded the owner to have the poor beast painlessly destroyed. Dr. Bashford, of the Cancer Research Association, to whom the head was sent, reported as follows:—

"The tumour on the cat's nose on microscopic examination shows the features of a granuloma rather than those of a sarcoma. We also inoculated a number of cats, and the rapidity with which they have developed tumours appears to bear out the conclusion that the tumour was of an infective nature."

A CASE OF JAUNDICE IN A YOUNG FOAL.

BY C. A. POWELL, M.R.C.V.S., WOBURN.

I FIRST saw the patient, a strong cart filly foal, about three or four days old, on the evening of April 2, 1903, and found it suffering from colic and constipation. I was told it had been in very good health until noon of that day, when it was observed to show symptoms of rather acute abdominal pain.

I administered an enema, and a dose of castor oil and chlorodyne, and left it for the night, with instructions to send word as to its condition in the morning.

The next morning word was received saying the foal was much better, but, however, rather dull, and that the bowels had not acted. Being very busy at the time, some medicine was sent, and instructions given to send word again if the foal was not all right by night.

I did not hear anything further until the following Sunday afternoon, the 5th, when a message was received asking me to see the foal at once, as it was very ill.

On my arrival I ascertained that the foal had apparently become quite well again until that morning, when it had seemed very dull and sleepy, continually lying stretched out flat on its side, and could not be made to get up and suck.

Examination showed all the visible mucous membranes and the white of the eye of a deep orange tint. The non-pigmented and hairless parts of the skin also showed this. The internal lining of the vagina was œdematous and slightly protruding through the vulva. Temperature 101° F.; bowels very constipated, respirations slow and deep. The foal could not be made to move, and when the head was lifted and loosed, it dropped it like a dead thing. The umbilicus was pervious, and its lining and the discharge from the opening of the same deep orange tint.

After giving up all attempts to get the animal on its legs, and whilst watching it, the patient suddenly jumped up of its own accord and sucked a little, then dropped down again and laid in the same inanimate attitude as before.

A dose of calomel was at once given, and the rectum emptied with enemas; its contents were clay-coloured, and of a most fœtid odour. A weak solution of formalin was injected up the umbilical opening, and an antiseptic astringent dressing left to be applied frequently. Powders containing Hydrarg. *c.* Creta were sent, one to be given three times a day.

The next two days there was very little change in the foal's condition. Powders, enemas, and umbilical dressings were continued.

On the 8th the foal was decidedly better, looking much brighter, bowels acting nicely, icterus not so much marked, and the tongue cleaner. The navel opening was still discharging, so I syringed it well with a strong solution of hydrarg. per. chlor. and continued with the Hydrarg. *c.* Creta powders, and dressing to umbilicus as before.

I did not see it the next day, but the day following—the 10th—when there was a great improvement, and it was much livelier and not at all sleepy. The mucous membranes had nearly lost the orange tint, the bowels were acting freely, appetite good, and umbilicus nearly healed.

On the 12th the foal had apparently quite recovered, and the umbilicus was quite dry. The foal was soon afterwards turned out with its mother and did well.

Last year I was called to a foal from the same mother, and found it manifesting the same symptoms, though in a slighter degree, as the one the previous year. This time, however, there were no colicky pains. Treatment was as in the previous case, and recovery was uneventful.

The mare is, I believe, in foal again this year, and I am rather curious to see if the same trouble occurs in the foal.

DILATATION OF THE HEART.

BY CAPT. A. J. WILLIAMS, A.V.D., NEEMUCH, CENTRAL INDIA.

On January 13, 1904, I was asked to examine an Arab charger, which the owner said was off his feed, getting thin, and seemed very sleepy.

The history given me is as follows: Between May and November, 1902, the animal got in very poor condition. Some condition powders and malt were given with careful dieting, and he regained his normal state of health.

In January, 1903, he contracted a slight attack of influenza followed by jaundice, but neither affected him much, and he remained in good condition.

During the Delhi military manœuvres he had hard marching, and did 120 miles in thirty-six hours without any apparent signs of fatigue.

In September, 1903, he got a severe fall by putting his foot through a broken culvert top, and his near knee was badly damaged.

Two days after the accident his temperature rose to 105·6° F., and a distinct sound could be heard upon placing the ear to the ribs on either side.

The noise was of a long-drawn-out, purring kind, but intermittent. The native "salootrie" treated the case as simple fever, and said the noise was nothing to worry about. The following morning the temperature was subnormal, and remained so for some days.

In January, 1904, he again had a fall, this time through striking the top of a jump, but showed no signs of being any the worse.

On January 24, 1904, when out on a field day, the owner noticed the horse was very sluggish, a very unusual thing, as he was a horse with great spirit. He had him walked home, and the next day he was found to be off his feed; temperature normal.

He was placed in a loose-box, put on bran and green fodder, and tonics given.

As there was no improvement I was called in a week later.

I was immediately struck by the character of the pulse, which was weak, irregular and intermittent. There would be about six normal beats, four fast, then a pause for a period of about four beats, rate 58 per minute; there was marked jugular pulsation.

I auscultated the heart, and found a very marked bruit present, a kind of a blurring murmur, which seemed to replace the first sound, making a noise similar to "burr-up," the second sound being sharp. I found it difficult to tell which sound was replaced by the murmur.

The murmur was clearest opposite the base of the heart, but could be distinctly heard over an extensive area, and on both sides of the chest.

Upon trotting the animal a few yards the apex beat became extraordinarily violent, thumping against the chest to such an extent that it startled the owner when I put him to listen to it, and the irregular intermittent character of the beats was most marked. The conjunctival mucous membrane was anæmic, legs cold, the other parts of the body warm.

I diagnosed the case as one of bicuspid insufficiency, and told the owner it was a case of valvular disease of the right side of the heart.

I did not think any treatment of use, but, as the owner was anxious to do something, I recommended rest, easily digestible food in small quantities, and often; and for medicine, digitalis, ammon. carb. and pot. iodid.

A curiously shaped and dilated heart.

Treatment was tried for a short time only. The owner was away for about three months, and during that time the horse remained in a loose-box and received no medicine.

He gradually became thinner, appetite became very capricious, expression anxious; attacks of colic appeared, and œdema of the extremities.

The heart symptoms gradually got worse, venous pulse very marked, the loud murmurs masked the heart sounds, and the apex beat was extremely violent after the slightest moving about.

As the case was hopeless I recommended destruction, and on *post-mortem* examination found the condition as follows:—

The heart when distended with blood was nearly round in shape, and appeared of an enormous size.

The dilatation of the right auricle and ventricle was very great and the walls very thin. I could easily place my closed fist inside the auricle and pass it through the auriculo-ventricular orifice into the ventricle.

The valves were healthy, and the left side did not appear hypertrophied.

The liver showed a well-marked nutmeg appearance, other organs healthy.

The following remarks *re* the photograph may be of interest:—

Length from top of right auricle to top of ventricle equalled 15 inches.

Length from top of right auricle to the right auriculo-ventricular furrow equals 9 inches; width at the widest part equals 10 inches. Weight, 12 lbs.

Remarks.—Heart disease in Arabs, I believe, is not common.

Although the jugular pulse was so well marked, bulging out the vein half-way up the neck, and the irregular intermittent nature of the pulse unmistakable, the native "salootrie" never suspected the heart being wrong.

I overhauled the animal in the usual manner, but the case was so marked that the pulse gave the clue at once, and the state of the owner can be imagined when he heard that his favourite charger, which he thought was simply off his feed, was really suffering from heart disease.

RUPTURE OF THE DIAPHRAGM.

BY MAJOR D. C. PALLIN, A.V.D., CHATHAM.

On the 21st ult. an Army horse was taking part in tent-pegging practice. He had four runs, and after the fifth, when being pulled up rather suddenly, fell, rolled over, and in a few minutes expired.

A most careful *post-mortem* examination was subsequently made, and the only abnormal conditions noticeable were impaction and engorgement of stomach, which pressed hard against an extensive rent of muscular portion of diaphragm, together with internal hæmorrhage apparently resulting therefrom. The animal had received the ordinary midday feed at 12.15 p.m., and the accident occurred about 3 p.m. He was a hard puller and with the military bit carried his head into his chest.

The full condition of the stomach, which became propelled against the diaphragm when being pulled up suddenly (or during the fall), was doubtless the cause of the rupture.

TETANUS IN THE HORSE.

BY CAPT. PERCY J. HARRIS, A.V.D. ALDERSHOT.

On Sunday, February 10, 1905, horse, Army No. 64340, 8th Hussars, was sent to the sick lines about 10.30 a.m., reported to be very stiff. I immediately examined the animal, and found her showing symptoms of tetanus. The head was slightly raised and neck stiffly stretched out; trismus was present, the nostrils somewhat dilated; membrana nictitans protuding, and the animal standing stretched out as if preparing to micturate. Minute examination failed to find any wound, but there was a fresh scar near the point of the near shoulder. On looking up the animal's veterinary history sheet I found she was admitted on January 20, 1905, for a contused wound, and discharged cured on February 4, 1905, the animal having fallen on the road and grazed its near shoulder. I was away on leave at the time, but the Farrier Major remembered the case and said it was a "gravel rash," the wound being covered in dirt. This history was quite satisfactory to me as to the cause, and I will now describe the treatment. Immediately I had diagnosed the case the patient was placed in a loose-box and put in slings; plenty of tan bedding placed down, and strict orders enjoined that the animal was to be kept perfectly quiet and no noise to be made in the environment of the box. Barriers were put up to prevent horses passing, or anything else that would attract the patient's attention. A good man was detailed to attend to this patient entirely. Gruel, steamed hay and water were offered, but were refused, and Ext. Belladonæ was administered *per rectum*. In the evening the patient was again tempted with fresh food, but refused. On the morning of the 13th the symptoms were the same, with the exception that the tail was raised and ears stiffly pricked; fæces and urine had been passed during the night. The horse drank a little water, but refused anything else. In the evening 10 cc. of antitetanic serum were injected, food being still refused. The next morning there was a slight improvement in that the patient started to nibble some steamed hay and drank a quantity of gruel. From that day a gradual improvement took place. Ten cc. antitetanic serum were injected every other day up to the 19th, and then every day up to the 25th, the animal having had altogether 100 cc. of the serum. At the present time the horse is loose in the box, the slings having been removed a week ago. She is eating well, and all symptoms have abated, with the exception of slight rigidity of a few of the muscles of the neck.

Remarks.

Previous to this case I had little or no faith in the serum treatment of tetanus, but now, having tried it, my opinion has been altered, because I am convinced in my own mind that this animal has been cured by the serum treatment, as I could see a decided improvement after the first injection. Having read Mr. Dalrymple's very interesting article on "Tetanus and Antitetanic Serum" in the *Veterinary Record* of February 18, I am certain that if I had given doses of larger quantity at first I should have had a far quicker recovery, and I only wish I could have read his article before this case came under my treatment. In future, if I get another case in the early stage of the disease, as the one I have now recorded, I shall certainly use the antitetanic serum, which I believe is of considerable value as a therapeutic agent.

CASE OF CARBOLIC ACID POISONING IN THE DOG.

BY CAPT. PERCY J. HARRIS, A.V.D., ALDERSHOT.

THE patient, a well-bred bull terrier, four years old, my own property, about 47 lbs. in weight, at about 1.30 p.m. a few days ago, helped himself to a mouthful of carbolised bran that was in a jar drying by the pharmacy fire. As I considered the small quantity taken, about 3 drachms, would do no harm, nothing was done.

At about 10 p.m., much to my surprise, symptoms of carbolic acid poisoning appeared, viz., muscular twitchings followed by paralysis of the hind-quarters and enormous distention of the abdomen, with difficulty in breathing, the mucous membrane of the mouth becoming white and hardened.

This state of things lasted for about four hours, with occasional attacks of convulsions, and then gradually diminished, and in 24 hours the patient had completely recovered. Treatment consisted in the administration of large quantities of white of egg in milk, and, when the symptoms had subsided, a full dose of castor oil.

The case seems a curious one on account of the small quantity of carbolic acid taken, which, calculating from the strength of the solution used to wet the bran and the quantity it absorbed, would work out to about 1¼ grains of pure acid. The dog's stomach was empty at time he took the bran, and this, perhaps, would have some effect; but in any event, 1¼ grains seems an extremely small amount to cause such violent symptoms.

NOTES OF NEARLY FIVE HUNDRED CASES OF ABDOMINAL SURGERY IN ANIMALS.

BY FREDERICK HOBDAY, F.R.C.V.S., F.R.S.E., KENSINGTON.

LAPAROTOMY IN THE HORSE.

(*Continued from page* 129.)

CASE 5.—March 27, 1905. The patient was an aged cab gelding, and had been in the owner's possession for about ten months, during which time it had had several attacks of colic, which had passed after the administration of an ordinary sedative draught. This time the attack was prolonged. The poor beast was in excessive pain, and there had been no action of the bowels for two days.

On the 27th we were called in and administered the usual colic remedies, followed presently by 5 drachms of aloes and numerous enemas of warm water. As they had no effect, hypodermic injections of eserine were given at intervals during this and the next day. On the 29th, at 10 a.m., by rectal examination one could feel a mulberry-shaped dust-ball calculus in the colon on the left side. It could only just be touched with the tips of the fingers, but pressure upon it caused excessive pain. At 5.30 p.m., under chloroform, laparotomy was performed on the left side low down in the flank just above the fold of skin over the stifle, 10 grains of morphia having been previously given hypodermically. The calculus was found without difficulty firmly fixed in the small colon close under the loins, and after

about twenty minutes' massage of the bowel in front of the obstruction and considerable careful manipulation, the stone was pushed back into the large colon, where there was plenty of room for the intestinal contents to pass by and where it must have been for some months previously. The muscles and skin were sutured with silk.

The horse lay for about an hour after the operation, still under the influence of morphia, then got up out of pain, and continued free from apparent pain from that moment.

March 30. The wound was sore, but the animal was out of pain. The temperature was 101°, and the patient passed some sloppy fæces between 10 and 11 a.m., and again during the afternoon and evening. He was very thirsty, and during the whole of that day only had cold water or eggs and milk.

March 31. Temperature 10 a.m., 100°; 10 p.m, 102°; drank eggs and milk, and ate a double handful of bran mash; passed several quantities of semi-solid and solid fæces.

April 1. Temperature, 102°; no solid food was allowed, but the patient drank plenty of eggs and milk, and passed quite a lot of solid fæces.

April 2. Temperature, 102·6°. The bowels were acting, and there was a slight puffiness at the side of operation. The animal was in no apparent pain, and ate some cabbage-leaves greedily. Unluckily on this date there was a perceptible fœtid discharge from the left nostril.

April 3. Drank eggs and milk, and ate a few carrots and scalded oats; temperature, 102·8°; the breath of both nostrils, especially the left one, very fœtid. These were sponged with disinfectant continually. The flank wound was a little more puffy, and on this account the collodion coating was removed, and the lower three sutures opened. From this orifice about two ounces of fœtid pus escaped, and the cavity was swabbed with chinosol lotion. Under antiseptic precautions 20 cc. of Tallianine were injected intravenously, and four hours later the fœtid smell of the breath had almost entirely disappeared and the horse seemed brighter.

April 4. The temperature varied on this day between 102·8° and 103·2°; the appetite was good, and a fair amount of fæces were passed; 15 cc. of Tallianine were given, and the wound dressed with chinosol lotion and tannoform; the bowels acted quite satisfactorily.

April 5. Temperature, 103·8°; 15 cc. of Tallianine were given intravenously, and the wound dressed three times during the day. The smell of the breath had decidedly improved and the animal passed a fair quantity of fæces, having eaten a little scalded chaff and oats, and taken eggs and milk freely.

April 6. Temperature, 103·8°; 10 cc. of Tallianine were given.

April 7. The temperature varied between 103·4° and 102°; the animal ate a little hay and dry chaff. A submuscular pocket had formed in the flank, and a seton was inserted to allow free drainage.

April 8. Gave 10 cc. of Tallianine. Temperature, 102·6°; the horse ate some tares and some dry oats with relish.

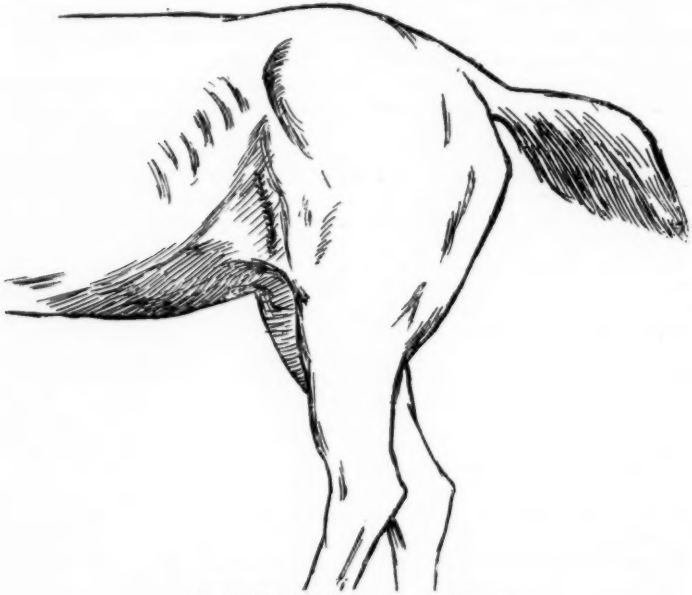
April 9. Temperature, 101·8°; the wound was dressed twice with dry tannoform, and looked decidedly better. This agent acted well as a deodorant and antiseptic.

April 10. Temperature, 103°. A small piece of necrosed muscle was

removed; no Tallianine or internal medicine was given to-day or on the 9th, and I thought the fœtid odour of the breath was a little more perceptible again.

April 11, 9 a.m. The horse seemed to be doing all right and had an excellent appetite, but the breath was palpably more unpleasant. I was just in the act of administering 10 cc. of Tallianine, and was doing it a little hurriedly, when the horse fainted and fell over, apparently in a lifeless condition. Probably this was due to the somewhat hurried insertion of the Tallianine, as I had been scrupulously careful to drive out every bubble of air from the barrel of the syringe.

The patient recovered somewhat and respiration became restored, but the animal never got up again and died about 10 o'clock.



Sketch of left flank showing site of incision.*

Post-mortem examination revealed the left lung to be gangrenous and much enlarged; there were several old-standing cavities in it, these containing very fœtid pus. The wound of the flank had some putrid pus burrowing down amongst the muscles, but none of it had entered the abdominal cavity, the organs of which were free from any violent peritonitis; the spleen, however, had become firmly adherent to the interior of the wound, and had thus closely covered the internal orifice. The portion of bowel in which the calculus lay and had lain was irritated and slightly inflamed; the calculus itself was all in the large colon in a position where it could be freely moved about, and weighed 30 ounces.

* For this sketch I am indebted to Mr. Reginald Ward.

Remarks.—Considering that the animal had lived for thirteen days after the operation, I had begun to hope that at last I had been able to obtain a successful issue from operative interference in a case of calculus in the bowel of the horse, and had not the septic pneumonia occurred as a complication, I really think the animal would not have died. How long the calculus would have remained in a portion of the large colon where ingesta could pass by it is a matter of question, but as it must have already been there for many months without causing serious trouble, there is no reason to doubt that this operation might have temporarily given the patient a fresh lease of life. It was an old cab-horse, somewhat emaciated, and his system was undoubtedly exhausted by the old-standing lung trouble, and by the continual pain in which he had been for several days before the operation. Unluckily, too, it was an animal that would never lay down, and I was somewhat afraid, as things seemed to be going on so well, to put him in slings. Probably had I done so this would have been of benefit, for the poor beast was continually in the habit of leaning back in a corner of the box to rest his hind-quarters at night. It was gratifying to see that death did not occur from peritonitis.

A Case of Rumenotomy in a Bull.

May 24, 1900. The patient was a valuable pedigree shorthorn bull, for whom the owner had paid sixty guineas in the previous September. The animal had always been unthrifty, and at one time had suffered from an abscess in the muscles of the left flank in the region of the seventh or eighth rib. This had, however, healed after some little trouble.

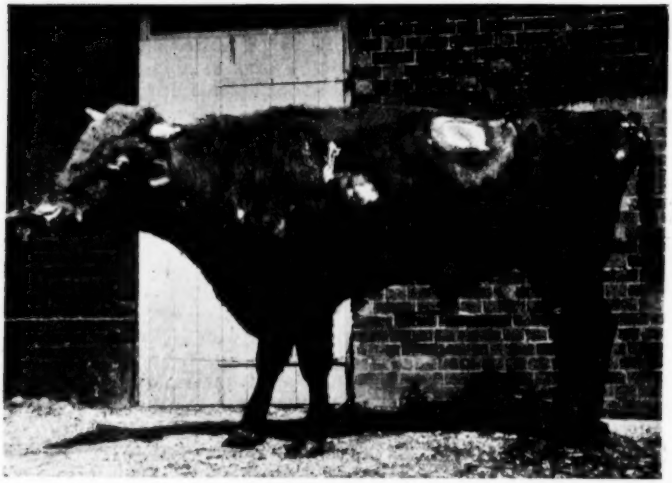
The case was under the charge of Mr. H. Jarvis, M.R.C.V.S., and it was after consultation, and in conjunction, with this gentleman that the operation of rumenotomy was performed.

The patient's appetite was always more or less capricious, and a diagnosis of indigestion was made. Various medicinal agents were administered, but their beneficial effect was never very prolonged or well marked.

An examination revealed a lump about the size of a large cob-nut on the left side, high up in the flank, immediately over the rumen and about equidistant between the angle of the haunch and the last rib, and, thinking this to be a foreign body which was in some way fixed against the wall of the rumen and perhaps responsible for the indigestion, we decided to operate. We thought we might find some foreign body or some adhesions to account for the loss of tone which evidently persisted in the rumen.

The bull was cast with ropes and fixed on the right side, the left flank was shaved, washed and scrubbed with antiseptic, and an incision made (under the anæsthetic influence of cocaine) through the skin and muscles in a direction obliquely from above downwards and forwards, following as nearly as possible the direction of the abdominal muscle. The rumen then came to the surface and was indised horizontally after being first packed around with a clean boiled towel. At this stage the patient gave a sudden struggle, which caused ejection of a considerable amount of the semi-solid contents. A manual examination of the interior was made, but no definite foreign body discovered. Almost

the entire contents were withdrawn, and the interior swabbed around with solution of chinosol. The wound (about eight inches in length) was sutured with Czerny-Lambert pattern of sutures, silkworm gut being used for the stitches which went through the walls, and boiled silk for the external row. The peritoneum was sutured with silkworm gut and the skin and muscles together with the same material. A layer of collodion and iodoform (1 to 8) was painted over the whole. The wound healed *per primam*, and never gave the slightest anxiety, nor did it require to be again dressed, the silkworm suture being taken out about a week later.



Photograph of shorthorn bull showing site of rumenotomy incision.

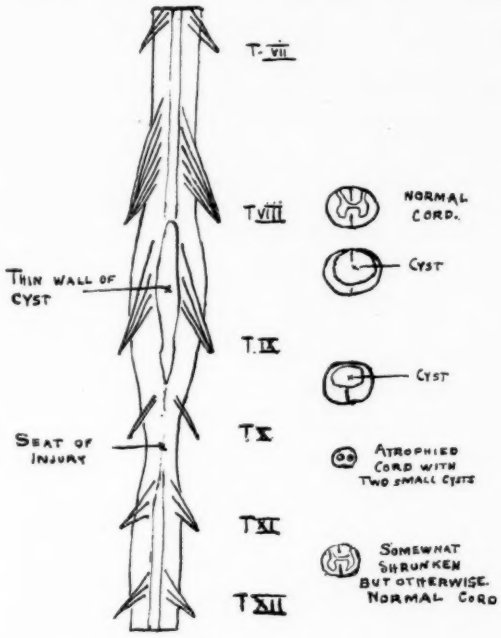
The photograph was taken by Mr. Jarvis three days after the operation, and illustrates the site of incision very clearly. Although we discovered no tangible or large foreign body as the cause of the digestive derangement, the sequel was a complete success, as the bull improved in condition and regained a normal appetite. Probably the stimulating effect of the removal of the contents and the consequent contraction had a good deal to do with the removal of the inertia of the rumen wall; once it had to some extent regained its tone it is easy to understand that with careful dieting for a few days the beneficial effect might become (as indeed it did here) permanent.

(*To be continued.*)

LUXATION OF THE VERTEBRÆ, FOLLOWED BY THE FORMATION OF A CYST IN THE SPINAL CORD.

BY G. B. MOWER WHITE, F.R.C.S., 112, HARLEY STREET, W., AND FRED. HOBDAY, F.R.C.V.S., F.R.S.E., KENSINGTON, W.

THE following case is of interest as it illustrates the length of time which an animal may live, if well looked after, after distinct luxation of the spinal column. The subject, an Aberdeen terrier about five years old, jumped out of a trap whilst the vehicle was going at the rate of some ten miles an hour. He fell heavily and became immediately paralysed in the hind parts. There was retention of urine for forty-eight hours and loss of sensation for some three or four months.



Sketch of the spinal cord, showing a cyst at the level of the 9th thoracic segment.

The loins were fomented and treated with sedative lotion, and in about a fortnight the dog recovered power of the sphincters, but the hind-legs remained paralysed and became spastic. There were increased knee- and ankle-jerks and foot clonus, but the scrotal reflex could not be obtained during the subsequent eighteen months. Prolonged periods of regular treatment with strychnine, arsenic, and iodide

of potassium respectively, with massage externally, were carried out, but beyond occasionally being able to stand for a few seconds or to walk for a few steps, no improvement resulted. As might be expected, at times abrasions were shown on the skin of the legs. The dog was destroyed in the lethal chamber about eighteen months after the accident happened.

A skiagraph was taken, but the result was not satisfactory and d not afford any assistance to a more exact diagnosis.

For the report of the *post-mortem* examination of the spinal column and the accompanying sketch we are indebted to Dr. F. E. Batten.

"The examination of the spinal column revealed a displacement between the 9th and 10th thoracic vertebræ without any fracture of bone. The spinal canal was not appreciably narrowed. On the outer and ventral surface of the dura mater, at the level of the injury, there was considerable fibrous adhesion between the dura and the bone.

"The spinal cord was markedly narrowed at the end of the 10th thoracic segment and on section but little normal cord substance could be seen. At the level of the 9th thoracic there was an elongated cyst occupying the dorsal portion of the cord—the cyst measured about 1 inch in length and about ¼ inch in its maximum diameter, and was filled with a clear fluid.

"The cord above this level appeared to the naked eye normal—below the level of the lesion there was probably some slight shrinking of the cord substance. There can be but little doubt that the cyst resulted from an intra-medullary hæmorrhage."

GRADUATION CEREMONIAL OF THE EDINBURGH UNIVERSITY.

Amongst those who received honour from the University of Edinburgh, we have pleasure in noticing the name of Dr. Orlando Charnock Bradley, M.B., Ch.B., M.R.C.V.S., F.R.S.E., the popular Professor of Anatomy at the Royal (Dick) Veterinary College, Edinburgh.

Professor Bradley has received the much coveted degree of D.Sc., the subject of his thesis being "Contributions to the Development and Morphology of the Mammalian Hind-Brain."

It is only a short time since that Professor Bradley won the Goodsir Bursary Scholarship, valued at £200, in open competition at the University.

He is well known as an indefatigable worker in veterinary science, and the whole profession will congratulate him upon his well-deserved success.

THE USE OF SUGAR AS A FOOD FOR ANIMALS.

BY COLONEL NUNN, F.R.C.V.S., F.R.S.E., D.S.O., C.I.E.,
ARMY VETERINARY DEPARTMENT.

In Great Britain the use of sugar products for feeding animals is in its infancy, although there is no doubt that it is increasing in favour with stock and horse owners; but on the Continent it is a recognised article and is widely employed, not only for cattle and cart-horses, but for animals doing quick work.

There are several by-products from the manufacture of sugar, both cane and beetroot, but the one that is used for the feeding of animals is molasses, the composition of each sort varying slightly, according to the process of manufacture. The following tables will show the average composition of each in cane and beetroot sugar, the slight variation in the process of manufacture not being necessary to consider.

Cane molasses (Prinsen Gearling's analysis) :—

Water	19·1 per cent.
Crystallised sugar	33·3 ,,
Reduced sugar	27·6 ,,
Ash	8·08 ,,
Organic matter	9·92 ,,

Beetroot molasses (Dickson and Malpeaux' analysis) :—

Crystallised sugar	46·00 per cent.
Glucose	0·00 ,,
Ash	9·45 ,,
Nitrogenous material	11·56 ,,
Organic material	6·19 ,,
Water	26·80 ,,

From the analyses it can be seen that cane molasses as well as beet molasses contain a very large percentage of ash (8·08 to 9·45), consisting nearly exclusively of potash salts, which exercise, as M. Ed. Curot has observed, a special influence on the action of the heart, causing the contraction to become slower and weaker. Potash salts also act on the spinal cord, decreasing reflex excitability, and also have, besides, purgative properties.

Dr. J. Augustus Voelcker, M.A., B.C., Consulting Chemist to the Royal Agricultural Society of England, in his report on the Woburn feeding experiments with molasses, 1900-1901, to the Royal Agricultural Society of England, vol. lxii., p. 301, also states :—

"There is, however, with its use (the use of molasses) a tendency to 'looseness' in the animal, which must be checked by not giving it in too great a quantity. One pound per day of molasses among four bullocks was found to be about the limit."

In these trials cane molasses had been used.

The practice was to mix a certain proportion with the feed, and on the premises this was fairly successful, but from the adhesive nature of the molasses it was difficult to get it thoroughly incorporated so as to allow each animal getting the proper amount, and accidents took place.

To obviate this, in Southern Russia and other parts of the world, the raw molasses was dissolved in warm water in the proportion of one to two or three parts, and sprinkled over the food.

In order to avoid the necessity of having to boil water, the West Indian plan has been advocated by Professor Holbrung of putting a bag full of molasses into a tub of water overnight and then damping the food with the mixture in the morning.

In the Department of the Pas de Calais and other parts of the north France of molasses dissolved in water is given to animals to drink, which in most cases they will do readily, but some refuse it at first and have to be taught to take it; in any case it is necessary to give a diluted solution at first and gradually to increase the strength.

All these methods of feeding molasses, however, are inconvenient, and could only be employed in the immediate vicinity of the factory where it was produced. As the difficulty of handling and properly apportioning it practically prohibited its use amongst large studs of horses, a matrix was sought for that would absorb it and allow of its being transported and handled. Different materials have been tried as absorbents, for example, brewers' grain, bran, palmkernel-meal, sawdust, bagasse (pith of the sugar cane), but notwithstanding their own feeding value, the mixtures have all the disadvantages of molasses, as the noxious properties of the potash salts have not been counteracted.

A suitable absorbent has been discovered in a special kind of peat-moss, consisting of sphagnum moss in its first state of humification. The material shows distinctly the structure of the living moss and contains, amongst other substances, a large proportion of humic acid, which, although by itself is of no value as a feeding material, has in combination with molasses specially valuable properties, both dietetic and therapeutic.

Peat, which has been described by M. Curot as a "fossil cellulose," is formed by the gradual decay of vegetable matter in cold, damp climates, as in warm, tropical ones the putrefactive changes are so rapid that peat has not time to form, and the chief deposits are found in Northern Europe, in these islands, more particularly in Ireland, Scotland and Yorkshire. There are several varieties of peat, the oldest and most formed, which is found deepest in the bog, more approaching the nature of lignite or brown coal, the other varieties varying in degree. The peat moss is formed from the "sphagnum" or bog moss, and is the only sort that is useful for the preparation of molasses as a food. In this country the chief source of supply is from the Yorkshire moors between Doncaster and Goole, round the village of Medge Hall, and it is remarkable that the moss has been found to be in regard of absorbing power and low quantity of ash far superior to the Continental products.

Molasses and peat moss were first used in Germany in 1895, and later on in France, and some idea of the extent to which it is employed may be gathered from the increase in the manufacture of it since that year, as contained in some published statistics:—

1894 to 1895,	amount manufactured,		1,300,000	kilogrammes.
1895 ,, 1896	,,	,,	3,900,000	,,
1896 ,, 1897	,,	,,	16,500,000	,,
1897 ,, 1898	,,	,,	52,190,000	,,

These are the latest statistics that I am able to get access to, but the rate of manufacture from private information seems to progress at the same ratio, and according to M. Curot, in the neighbourhood of Paris alone for several years twelve to fifteen thousand horses have been getting from 1½ to 2 kilogrammes of sphagnum peat molasses daily.

M. Grandeau, of the Agricultural Department, gives the following analysis of the compound manufactured in Paris :—

Water	19·00
Nitrogenous matters	9·77
Starchy ,, ...	53·81
Fatty ,, ...	0·34
Mineral ,, ...	9·31
Cellulose ,, ...	7·77
	100·00

The analysis of the ash he also gives as :—

Carbonic acid	2·529
Chlorine...	0·363
Phosphoric acid	0·032
Potash	3·554
Soda	0·953
Silica	0·411
Lime, magnesia, oxide of iron, alumina, sulphuric acid, &c.	1·468
	9·310

The preparation used in England is known under the trade name of Molassine Meal ; the consumption of this food totalled, in 1904, over 100,000 tons, and is still increasing. The following analysis, by Dr. Bernard Dyer, shows the composition :—

Moisture	19·20
Oil	1·06
1. Albuminoids	7·94
2. Mucilage, sugar, digestible fibres, &c. ...	55·48
Indigestible woody fibre	6·87
3. Mineral matter (ash)	9·42
	100·00
1. Containing nitrogen	1·27
2. Including sugar	35·70
3. Including sand...	·10

The process of manufacture is a patent, and requires special machinery, but the absorbent properties of the sphagnum peat moss are so great that 15 to 20 per cent. only is required to take up 80 to 85 per cent. molasses, and then it is, comparatively speaking, dry; at all events, sufficiently so to allow of it being handled and transported from place to place. It has a great recommendation in its composi-

tion being consistent, so that within a fraction the amount of molasses given to each animal is known, and being in a semi-pulverised condition, it can be readily mixed and thoroughly incorporated with the food. The advantage of this property is obvious, and, furthermore, allows of damaged forage being used up that otherwise would not be eaten. The composition of both English and Dutch peat moss is given for comparison.

English Peat Moss:—

Organic matter	77·76
Phosphates	6·83
Alkaline salts	9·60
Insoluble matter	5·79
	100·00
Containing nitrogen	1·24
Equal to ammonia	1·50

Dutch Peat Moss:—

Raw cellulose	27·70
Sacc. modifiable	5·60
Proteitic matter	4·81
Ash	1·50
Humic compounds	23·04
Undetermined compounds	37·35

It will be seen that the quantity of raw cellulose in the finished article would be very small when compared to most foods, and if the digestibility of it is taken at 30 per cent., which is the calculation for other forage, there would be an extremely small quantity of inert material left.

As for the other constituents of the peat moss, they are far from being inert; in fact, some of them have highly valuable properties, the most important being humic acid.

Humic compounds are derived from hydrate of carbon, sugars, starch, cellulose, &c., by dehydration, and possess many of the properties of carbon, particularly the power of absorption, and M. Berthelot (*Chimie. Vegetale*, vol. iii.) has shown that humic acid derived from sugar or present in vegetable substances combines with potash and forms alkaline humates, certain of which are insoluble. MM. Pellet and Quillard (*Bull. de Chim.*, October, 1901) have proved that the humic acid in peat has the same properties which are turned into practical value in the manufacture of Molassine Meal.

The humic acid contained in sphagnum peat moss transforms the soluble potash salts in insoluble or less soluble products, which are not assimilated, but expelled, and thus the detrimental properties of molasses (whether cane or beet molasses) are counteracted.

This property of sphagnum peat moss is easily demonstrated by a most simple experiment. If a small quantity of raw molasses is dissolved in water the mixture has a disagreeable taste imparted to it by the alkalies, but if a small quantity of peat moss is added to it, stirred up

with it and then filtered, this disagreeable taste will have disappeared to a great extent.

The salts that are rendered insoluble are precisely those that are most harmful, and both laboratory experiments and practical demonstrations on living animals have shown that ten to twelve per cent. of the potash salts in the molasses are rendered insoluble and are not absorbed; furthermore, that it is the alkaline salts, sulphites, carbonates, &c., that are most deleterious, that are so acted upon.

Another valuable property of the humic compounds is their power of absorbing both gases and liquids, which is proved by the fact that the fæces of animals fed on Molassine Meal are nearly odourless as compared to those of others that are getting ordinary food. In pigs this is most evident, and is of considerable importance when these animals are kept in towns or villages.

A distinguished French agriculturist, M. Grandeau, in a series of articles in the *Revue Agronomique*, relates some experiments made by him which go to show that the use of molasses and peat moss tends to lessen the digestibility of other foods. M. Curot, who is a strong advocate for the use of sugar as a food for animals, has completely refuted this in a most elaborate series of experiments which will be found in his work, "*La Sucre dans l'Alimentation des Animaux*," pages 183, 197.

M. Grandeau, in the *Temps* of May 4, 1901, further publishes some statistics taken from a stud of 1,600 horses regarding the prevalence of colic with ordinary food and molasses that clearly show the benefit derived.

Food	Daily Ration of Molasses	Monthly Percentage of Colic per cent.	Monthly Mortality from Colic per cent.
Ordinary food ...	—	21·00	7·81
With molasses ..	1 Kilo.	18·53	6·33
Molassine meal ...	1 Kilo.	6·33	2·00

The horses from which these statistics have been compiled were all under precisely the same stable management, and were worked hard, but all in the same degree. The period that the statistics extend over is three years, and except for the molasses the food during that time was not changed; and as M. Curot justly remarks, "It is difficult to admit that the matrix that gives the molasses its greatest value in lessening diseases of the digestive system is that which diminishes the digestibility of the other constituents of this food."

A number of most careful observations have been made on the Continent as to the value of molasses as a food for animals, and as they are very complete and have been conducted by experts, they are of extreme value. These experiments have been made on every class of horse, as, contrary to the accepted view in England, not only is sugar of use for cart-horses moving at a slow pace with heavy loads, but for light ones doing severe and prolonged work, and from which great exertions are required. One of the most important observations was made in 1902 by M. Lavalard, Veterinary Surgeon to the Paris

General Omnibus Company, who have a stud of 15,000 horses, and the results of which are so conclusive that they had better be given in his own words.

"In May and June, 1901, on account of the dearness of all sorts of grain, a number of trials of different sorts of molasses foods were made, but on account of the then high price and the uncertainty of the results the project turned out a failure. At this juncture the success with which a compound of molasses and sphagnum peat moss termed 'Molassine Meal' had been used in the German, Austrian and Russian Armies was brought to our notice by Dr. Schwartz, and it was decided to give it a trial. It contains thirty-seven to forty per cent. of sugar, and is composed of eighty to eighty-six per cent. of molasses with fourteen to twenty per cent. of peat moss.

"On July 7, 1901, the trial commenced with 24 horses that were given half a kilogramme, replacing an equal quantity of grain; it was afterwards increased to one kilogramme, and subsequently to one and a half. The horses at once ate it and liked it, and on this account the quantity was increased.

"Gradually the whole of the company's horses, 15,000 in number, were getting 2 to 4 lbs. There has been a surprising decrease in the number of cases of colic, and since its use there has not been a single one of diarrhœa. The way in which a kilogramme of Molassine Meal replaced an equal quantity of mixed grain, 'oats, maize, and beans' was most remarkable, and it was most striking the way in which the whole of the food was picked up, the mangers being quite cleared out, which under the former system seldom happened. The 24 horses that the trial was originally begun with have since December, 1901, been getting 6 lbs. of Molassine Meal. They have been weighed every eight days, and their weight has only been subjected to the natural variations that might have been expected, although they have worked the same as the others." This important experiment proves both the hygienic and dietetic value of "Molassine Meal," and that when fed on it the ability to work is not decreased.

It has been affirmed that sugar in any form provokes thirst, and horses fed on it drink excessively. In some experiments published in the *Temps* of July 12, 1901, on feeding with sugar, by M. Grandeau, he particularly notices this, and says: "The quantity of water consumed daily was roughly about 3 litres per kilogramme of dry food in the ration, which is, if anything less than the quantity drunk by horses that are getting ordinary food without sugar, and, contrary to the accepted opinion, even a considerable quantity does not provoke thirst in the horse."

Lieut. Bausil, in his work "Paris, Rouen and Deauville," which is an account of a military long-distance ride, speaking of the dietetic and hygienic value of sugar, says: "Sugar is too expensive to use regularly as a horse food, but molasses can be purchased at a moderate rate and is nearly as good, and in addition the salts that it contains causes it to act as a slight stimulant and purgative.

"By its use digestion is helped, the intestines kept free of effete and deleterious matter, and the health preserved. I have also remarked that it gives horses a good coat."

Raw molasses can be given by dissolving it in water and sprinkling it over the food, but this plan, especially in the summer, attracts flies.

For this reason alone Lieut. Bausil advocates the use of molasses, and says: "I think the daily ration should not be more than 1, or at the most 1½ kilogrammes, not on account of the amount of sugar given but from the minerals contained in molasses, especially salts of potash. In large quantities they act as purgatives and diuretics, and I some years ago had an accident from this cause with a thorough-bred mare of my own. I think it inadvisable to give molasses in too large quantities, but on the contrary, when used moderately it is excellent, and can be with advantage employed as a substitute for bran mash."

The opinion of this writer is most interesting, as his experience has been with blood horses, and statistics of feeding this class of animal are much fewer than with cart and heavy draught horses; but some information can be gathered from the published accounts of the long-distance military rides "that are held in Continental armies" on the value of sugar.

Brussels to Ostend.—This ride, which took place on August 27, 1904, was organised by the Belgian military authorities, the distance being 132 kilometres. There were 141 entries, 37 being thorough-bred horses. Sugar had been given to some while training, but in such small quantities that its effects were *nil*. An exception must be made as regards Lieut. Deremetz, of the 8th French Hussars, who was second, and who during the ride not only gave sugar to his horse but took it himself, but unfortunately the amount was not recorded. During training, however, the horse had 1 kilogramme of molasses daily.

Sedan to Brussels and Back.—In this ride Lieut. Bausil, of the 28th French Dragoons, and a non-commissioned officer of his regiment on two of his horses, covered 400 kilometres in 40 hours 45 minutes, and 47 hours 40 minutes, respectively, over rough, bad ground. While training both horses had a kilogramme of molasses, representing 450 grammes of sugar, daily. At each halt the horses had a bucket full of warm water and sugar (1 litre of water to 1 kilogramme of sugar) and a small quantity of oats and hay; but as the whole was not taken it is calculated that only 300 to 400 grammes of sugar were taken at each stopping place, of which there were six. In spite of the long distance and hard roads, both horses returned as fresh as they started.

Paris to Deauville.—This is the most interesting ride that has been yet accomplished, as M. Grandeau has published a detailed scientific account. For this competition there were 44 entries and 32 starters. The distance was divided into two stages. The first from Paris to Rouen, 130 kilometres, the second Rouen to Deauville, 80 kilometres, the object of the ride being to prove if the horses that covered the first at a pace of about 10 kilometers an hour could, after a rest of 15 to 20 hours, complete the journey at a gallop. The shortest time that the first stage was completed in was 13, the longest 15, hours. One of the competitors was Lieut. Bausil, who has published a pamphlet on the subject ("Paris, Rouen, and Deauville." Sylva and Leclere, Paris), and gives his experiences. For the last eight days before the ride his horse, in addition to his ration, which consisted of oats 9 to 10 kilogrammes, hay 2 to 2½ kilogrammes, had 3 kilogrammes of pure crystallised sugar. Part of this was given in the drinking water and part mixed in with the food.

On the day of the ride at mid-day he had 2½ kilogrammes of sugar, and at 5 o'clock, two hours before starting, half a kilogramme dissolved in 5 litres of water. At Mantes, 57 kilometres from Paris, he had 200 grammes of sugar in 2 litres of water, and 37 kilometres further on, in addition to 3 or 4 litres of oats, half a kilogramme of sugar in 5 litres of water, making 700 grammes altogether since starting. At Rouen he took 300 grammes in 3 litres of water at once, ate a little hay, and then had a similar drink. He was examined by the official veterinary surgeon, and found to be in perfect health and condition. The rest at Rouen was 10½ hours, and at 4.30 a.m., in addition to his ordinary food, he had 2 kilogrammes, 100 grammes of sugar in his drinking water.

In the galloping part of the course from Rouen to Deauville, two hours before starting the horse had 300 grammes of sugar in 3 litres of water. The first stop was 22 kilometres from Rouen—time, 1 hour 18 minutes; he then had 100 grammes in 1 litre of water.

The second halt was 53 kilometres from Rouen,—time, 2 hours 5 minutes; he had 300 grammes in 3 litres water. Third halt, 63 kilometres from Rouen—time, 3½ hours; 400 grammes sugar in 4 litres water.

On arrival at Deauville he had, as at Rouen, 600 grammes of sugar in 6 litres of water, divided into two portions, and during the day 2 kilogrammes 400 grammes in his feed.

According to this, during the two days the ride lasted, Lieut. Bausil's horse each day had 2 kilogrammes of sugar, 300 grammes before starting and 600 after arriving, and on the road, in addition to the daily ration of 3 kilogrammes, 700 grammes the first and 800 grammes the second day, or, in all, 13½ kilogrammes in sixty hours.

Lieut. Bausil came in first from Rouen to Deauville in 4 hours 14 minutes 45 seconds, and the third competitor, who also had given his horse sugar, in 4 hours 18 minutes 2 seconds. The winner attributes much of his success to the use of the sugar, and furthermore mentions that it diminished instead of provoking thirst. It is, however, necessary to teach horses to drink sugar and water; some will refuse it for a long time, although they will readily take it when mixed with the food or in lumps out of the hand, and when undergoing violent exertion it is best to give it dissolved in water, as it is more quickly absorbed into the system.

These experiences are very interesting and valuable; especially Lieut. Bausil's opinion has to be appreciated, as he gives a minute report of his two rides covering 400 kilometres in 40 hours 45 minutes, and 80 kilometres in 4 hours 14 minutes 45 seconds.

Sugar has been proved here to be a first-class means to make horses fit for hard work, but great care has to be taken, and Lieut. Bausil states that the salts of potash contained in molasses act as purgatives and diuretics, and from this cause some years ago he had an accident with one of his own thorough-bred mares.

As explained before, the humic acids contained in sphagnum moss peat counteract the ill-effects of the potash salts, and this danger is avoided in the combination of molasses with sphagnum moss (called Molassine Meal), but other sugar (molasses or molassed) foods have the detrimental properties of molasses in proportion to their contents of sugar.

Some very valuable reports have been given as to the use of Molassine Meal with Service horses.

Major Willis, when commanding the reserve squadron of the 7th Princess Royal Dragoon Guards, made some experiments and reported that there was an improvement in the condition of twelve horses that had been fed with this food. Their condition was highly satisfactory, although they were the worst class and most unthrifty animals in the squadron.

Col. the Hon. R. T. Lawley also reported most favourably on the results of feeding twelve horses for six weeks. He also says he selected fifteen of the most unthrifty, bad-conditioned ones, and looked upon the results as satisfactory. This was at Aldershot when he was commanding the 7th Hussars.

Captain Wilson, who is now the officer in command of the Army Service Corps in the Straits Settlements, made some careful tests at Woolwich in 1902, and gives the following result of six weeks' feeding on Molassine Meal :—

Sqdn. No.	Cwt.	lbs.	Cwt.	lbs.	Cwt.	lbs.	Cwt.	lbs.	**Total Gain.**
105	9	2	9	7	9	14	9	26	**24 lbs**
9	8	45	8	48	8	48	8	59	**14 lbs.**
37	9	13	9	10	9	16	9	27	**14 lbs.**
136	9	15	9	18	9	18	9	30	**15 lbs.**
103	8	28	8	31	8	32	8	47	**19 lbs.**
6	9	15	9	12	9	18	9	19	**4 lbs.**
25	8	36	8	39	8	40	8	45	**9 lbs.**
86	10	1	10	2	10	2	10	7	**6 lbs.**
1	9	1	9	5	9	11	9	17	**16 lbs.**
33	8	42	8	46	8	50	8	53	**11 lbs.**
114	8	32	8	35	8	41	8	46	**14 lbs.**
16	9	18	9	21	9	25	9	32	**14 lbs.**

Captain Wilson also says the horses selected for trial were all in very poor condition and did their usual work whilst on the diet.

During the late war in South Africa large consignments of Molassine Meal were shipped regularly for the Army, and since that time it has been used regularly at some of the depôts throughout the country, especially at Woolwich, and if Molassine Meal is not in use generally in the British Army, as it is in the German Army, probably the reason is that in our service the feeding of horses is a matter that the veterinary surgeon is not allowed to have much to do with, and the stimulating properties of sugar are not understood by those in whose hands it is, and who have no medical knowledge. Indeed, in the English mounted service, "sugar" of any sort is only looked upon as a fattener.

On the Continent, however, a different system exists, and in the German army Molassine Meal has been regularly used as a ration for a long time past.

In Appendix No. 1, of May, 1898, of the Manual for Officers in the German Army, the use of Molassine Meal is specially recommended, the

quantity allowed being from 2 to 3 lbs. per day. It is allowed for delicate feeders, and those that refuse food after hard work. It is also used after manœuvres when horses have fallen away in condition, and since its introduction there has been a remarkable decrease in cases of colic.

In the Austrian army Molassine Meal is largely used.

These details have been compiled from various reports and statistics, and it will be noticed that they relate to the use of pure sugar and molasses. With regard to the former, the price would be prohibitive if used on a large scale, and the latter, although cheap, is not without danger. Crude molasses contains a considerable percentage of both soda and potash salts, and if given in large quantities they have a noxious effect, giving rise to both bowel and kidney disturbance. As has been pointed out, when combined with sphagnum peat moss in the form of Molassine Meal, the humic product of the moss enters into chemical combination with these salts, neutralising them and rendering them inert, so that the danger of feeding on large quantities of crude molasses or sugar is avoided, as when incorporated with the peat moss it is not a mere mechanical mixture of molasses and cellulose, but a definite change takes place in the composition of the chemical constituents.

A class of animal for which Molassine Meal is particularly indicated are brood mares, provided always that the other ingredients of the food contains a sufficient proportion of nitrogen and sulphates.

At this period, in addition to its hygienic properties which have been described, it increases the secretion of milk, also it regulates the digestive functions, and it has been noticed that when mares have been fed on it there is no difficulty in the expulsion by the foal of the meconium, and that cases of infantile diarrhœa and constipation seldom occur. Many foreign breeders always give it to foals at weaning time.

There is no space in the present article to deal with the value of Molassine Meal for cattle, sheep and poultry. At some future date I hope to devote detailed consideration to this; here I limit myself to its value as a food and a therapeutic agent for horses. To sum up, I have found, on high authority, that it is a great tonic and strengthener, enabling animals to do the heaviest kind of work and maintaining them in good condition, replacing equal quantities of oats, maize, beans, &c. It is an appetiser, and aids in the easy digestion of other foods. It is, itself, easily digested and renders a horse thoroughly "fit."

For foals, colts, and old horses, as well as for brood mares, there are excellent reasons for recommending its regular use; and to hunters, racehorses, and polo ponies it gives remarkable powers of endurance.

As a therapeutic agent Molassine Meal undoubtedly has a healthy action on the bowels, aiding digestion and keeping the patient free from worms. It seems at once to fatten and harden the animal, and there is little doubt that in a short space of time it will become, in spite of prejudice, the staple food of all classes of horses.

PRESENTATION TO PROFESSOR AND MRS. DUNSTAN.

AT a Smoking Concert held in the Royal Hotel, Edinburgh, on Wednesday, March 28, Professor John Dunstan, of the Royal (Dick) Veterinary College, was, on behalf of the Students and Staff, presented with a beautiful silver tray and pillar table lamp, the presentation being made on the occasion of Professor Dunstan's leaving the College to take up practice at Liskeard, in Cornwall.

The meeting was a large and enthusiastic one; Principal Dewar occupied the chair and was supported by Professors O. Charnock Bradley and Kerr, Drs. Farquharson, Stewart MacDougall, Leighton, J. H. Ashworth, and Messrs. J. H. Darlow Sergeant and W. Scott Stevenson. The presentation was made during an interval in the excellent musical programme. Professor Dewar, after a few well-chosen remarks relating to the occasion, called upon Dr. Bradley to make the presentation. Dr. Bradley, in a felicitous and eulogistic speech, referred to the regret with which the resignation of Professor Dunstan had been received, but the loss of the College would be the gain of the people of Cornwall. As a teacher and practitioner, Mr. Dunstan had the highest qualifications; he had brought to bear on his work ripe knowledge of and interest in his subject and his profession, and these, wedded to culture, sympathy with science, knowledge of men, and his wide outlook, had made his work not only popular but highly successful. The kind relations existing between Professor Dunstan and his students had their counterpart in his excellence as a colleague; his geniality, his obliging disposition and his sanity of judgment making him in every way the most desirable of colleagues. Professor Bradley, in asking the company to drink Professor Dunstan's health, coupled his name with that of his excellent helpmate, Mrs. Dunstan, and conveyed to them the cordial wishes of all present for their happiness and prosperity in the new sphere of work in Cornwall. The toast was received with enthusiasm, the hall resounding with cheers and the singing of "For they are jolly good fellows."

The inscription on tray and lamp read as follows:—

"Presented to Professor and Mrs. John Dunstan by the students and staff of the Royal (Dick) Veterinary College, Edinburgh, 29th March, 1905."

The captain of the athletic club added the testimony of the club to Professor Dunstan's efficiency as its President, and warmly acknowledged the encouragement and support the club had received from the Professor and his wife.

Professor Dunstan feelingly thanked the subscribers, on behalf of himself and his wife, for the kindness which had prompted the handsome presentation, which would ever be cherished with pleasant recollections of his work in Edinburgh. Professor Dunstan, in serious vein and in humorous sally, reviewed his experiences as a Professor, and at the close of a speech marked by characteristic modesty, was again loudly cheered.

A very successful gathering was brought to a close, after a long programme of song and story, by a vote of thanks to Principal Dewar, moved by Professor Kerr.

Translations and Extracts.

A REMONSTRANCE.

BY DR. H. A. SPENCER, SAN JOSE, CAL.

I THINK all veterinarians will agree with me that acquiring a professional education is not only laborious, fatiguing, expensive and time-consuming, but something to be highly prized and jealously guarded.

A young man who starts out in life to prepare himself for the practice of veterinary medicine and surgery does so because he has been endowed by nature with a love for animals, and a desire to mitigate their sufferings when sick or disabled; this, at least, is the prime reason that he selects such a pursuit. Financial gain does not offer much inducement, social position presents less. Any, or nearly any, of the other professions, viz., the medical, the law, the army or the navy, will give more substantial social and financial acknowledgement to merit.

When one has determined that the profession of veterinary medicine is the calling that will bring him the most happiness and con' atment, he begins to look about for methods of acquiring the same. He soon learns that there is no royal path by which he can reach the goal of his ambition. He must enter a college and earnestly and diligently study, but in order to do this, he must pass a matriculation examination, whereby those who are to give him the benefit of their study and researches may be enabled to determine his ability to receive and retain instruction. After having successfully passed this ordeal, he will find that for the next three years he will of necessity have to diligently apply himself to acquiring a thorough knowledge of anatomy, both comparative and special, physiology, pathology, bacteriology, materia medica, surgery, chemistry, microscopy, and about a dozen other studies; all of which he will be "quizzed" upon daily; and two or three times each session he will have to submit to written examinations; he will early learn that a veterinary college is no place for drones. When at the end of his third session the long looked for diploma is issued to him, he will receive it with profound gratitude that his troubles are over; but alas, he soon realises that his troubles have just begun; he has much to learn, and rebuffs and jibes follow thick and fast.

Now for the remonstrance, and it is against the practice of answering queries in horse papers and cow journals anent the ailments of stock.

Why is it done? Does the veterinarian gain anything by it? Does it redound either to the credit of the profession or to the finances of the author? Is it ethical? Does it usually cure the patient? Can a man unfamiliar with disease and its causes intelligently apply curative agents? Are you not, when you perpetrate such offences, taking the bread and butter from some poor fellow who has striven just as hard as you have to acquire knowledge?

Answer these questions conscientiously to yourself, and, aside from the very cheap advertising you have gotten, you must agree that with

all your boasted pride of profession, that notwithstanding your vaunted efforts for its upbuilding, you are doing more to pull it down and cheapen it than all the quacks you so relentlessly prosecute.

Who but your kind prostituted the scientific treatment of parturient paresis by a cleanly educated practitioner into a greasy old bicycle pump and a manure bespattered Swiss milker? Who first advertised to the laity the absorbent stimulating effects of mercury and its preparations? Who but some of your blooming ilk are responsible for "Save the hoss" and "Uneed a cow," or "H. H. H." (hell has hit), and hundreds of other nostrums?

Now, brother veterinarians, I want to disclaim any intent to apply these remarks to anyone in particular, but I do insist that those who are cajoled by some newspaper man into directing treatment of our patients are not only doing themselves and the rest of us a grievous injury, but, as a rule, they afflict dumb animals with unnecessary punishment in lieu of relief.

Some may think that the knowledge they so lavishly bestow is their own and they have the right to do with it as they please. With all such I take issue: you have no right to impoverish your *confréres*, nor have you the right to believe that uneducated men can administer to the wants of a sick animal intelligently from the newspaper advice of a person who never saw the sufferer.

(*Western Veterinarian.*)

THE RELATIONS OF MEDICAL MEN TO EACH OTHER.

*An Introduction to a Discusssion on Medical Ethics.**

BY RODERICK MACLAREN, M.D., CONSULTING SURGEON, CUMBERLAND INFIRMARY.
(Late Chairman of the North Cumberland Division.)

ETHICS is defined as "the science which treats of the nature and grounds of moral obligation, which teaches men their duty and the reasons of it." Medical ethics is a limitation of this to the conduct of medical men in their professional capacity.

It has been said that this should be nothing more than an observance of the golden rule, "Whatsoever ye would that men should do to you, do you even so to them." While it is undoubtedly true that all correct intra-professional conduct ought to conform to this rule, it would be a very partial view of the subject were it limited to this statement. For in the multiform and complex relations of a well-evolved society it is often a most difficult question to answer, what men should do unto you, and conflicting conclusions may be reached by men equally anxious to do right.

It is undoubtedly to the advantage of the public as well as of this special occupation that the mutual relations of medical men should be such as to promote peace and friendliness, and that there should be no

* Abstract from a Paper read before the annual meeting of the North Cumberland Division of the Border Counties Branch of the British Medical Association.

obstacle in the shape of distrust or jealousy to prevent them helping each other in grave cases and emergencies. There have existed such strained relations between practitioners that the expression of an opinion by one was certain to be followed by the assertion of a diametrically opposite view by the other, apart altogether from the merits of the case—a state of tension very apt to lead to disastrous results in actual practice. There is, therefore, good reason to have certain lines of conduct laid down as proper under given circumstances, both as guides to action and barriers against disagreement.

The public have the idea that medical men are bound hard and fast by certain rules which cannot be understood, and that these determine conduct differing in principle from that of other people. These supposed rules they call medical etiquette.

It is essential that every medical man, even more than other men, should carefully restrain whatever has the slightest appearance of meddling in the concerns of others. He does well to avoid enquiry about other men's patients beyond what ordinary politeness or neighbourly friendship requires, and nothing should ever be said in conversation which can be construed into suggestion or criticism. So also after consultations. It is a wise regulation which limits interest to professional contact. When pre-existing friendship, when social mingling intervenes, it is often difficult to steer a course which avoids on the one hand a cold, unfeeling aloofness, or on the other a friendliness and familiarity which is capable of misinterpretation.

One of the most common relations between medical men is that between consultants and practitioners. Consultations occur under two considerably differing conditions. In the one set the consultant does this kind of work and this only. He does not undertake the treatment of patients without the intervention of the family practitioner. In these circumstances the line which separates the consultant from the practitioner is a distinct and well-defined one, and few difficulties are met with. There is little impelling motive for either to trespass on the field of the other. The consultant sees the patient, who is generally a stranger to him, either with the ordinary attendant or, if the case is sent from a distance, in concert with and after hearing from him. An examination is made, an opinion formed and discussed, a treatment is decided on, and the consultant's connection, for the time being, there ends.

Simple and straightforward as this story seems, there are yet a few ways in which a consultant may act in violation of ethical principles. He may suggest to the patient to come again, or he may see the patient without communicating with the usual attendant. Both practices are much to be deprecated, the former opens the way to the self-interested making of fees, and the latter is unjust to the medical attendant who is in the position of being the introducer of the patient to the consultant. If there is anything in the ailment which time alone will evolve, if it is advisable to rediscuss the effects of treatment, making it reasonable that the consultant should again see the patient, the suggestion should be made through the ordinary attendant, thus giving him the knowledge of what is proposed, the reason for it, and the power to carry it out should he see fit.

The other form in which consultations occur is when the consultant is not in consulting practice solely. Except in large cities, this must be; unless there exist a great or wealthy population the amount of

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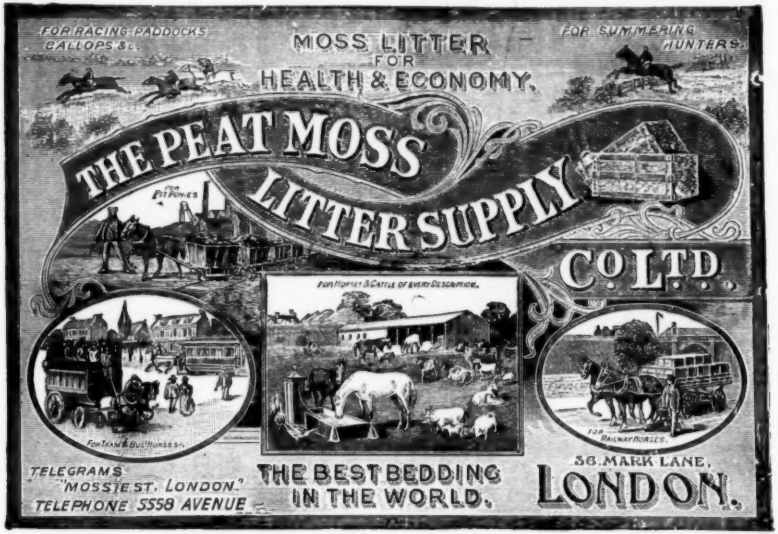
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&c.

The "COUNTY GENTLEMAN," *April* 1, says: "Chief among the merits of Peat Moss are the ease with which it is stored; the small danger it offers as regards fire compared with Straw; non-conductivity; the great powers of absorption; its antiseptic properties, and the ease and advantage with which it can be used as Manure in town gardens and in the country."

consultation work required will not give a pure consultant a reasonable living. Sometimes the consultation is between men of strictly equal position, but most frequently the consultant has or is supposed to have some special fitness. He may be physician or surgeon to a hospital, or he may have devoted himself largely to and gained experience in one branch of medicine. And yet he may not have debarred himself from acting as a general practitioner. Such consultations obviously contain elements which may give rise to positions of considerable difficulty. The same rules are binding on the consultant practitioner as on the pure consultant. He should consider himself as introduced by the attending practitioner. Prudence and equity alike enjoin that he do not supersede him. His connection with the case should terminate with the consultation. It would manifestly be unfair to the ordinary medical attendant that he should call in another man for the good of his patient with the possibility of being displaced by the newcomer. It seems to me to speak well for the common-sense and forbearance of doctors that breaches of this practice are so rare. The consulting practitioner is often sorely pressed to take over a case where there is a real or imaginary grievance, and it is often hard to convince patients or their friends that they are asking for a dishonourable act. We must also allow that there are limitations and exceptions to the application of the rule. We may agree that the obligation does not last for ever. After a lapse of time, differing, according to circumstances, as men of sense we should hold that the influence of the introduction has worn out and that it should not be considered a breach of professional decency for a practitioner to become the ordinary medical attendant because he has at some distant period acted as a consultant to the same patient. The interval should be long and the circumstances such as justify a reasonable man in changing his medical adviser. I have known the very recollection of a consultation fade from memory after the lapse of years. So after the interval of years it would be an undue interference with human liberty to forbid such a relationship. A recent work on medical ethics limits the period of exclusion to the illness. But in justice to the intending practitioner, this is too short. It might be thought to hold out an inducement to the consultant to act so that he should become the regular medical attendant.

It is sometimes laid down in medical journals and by writers on this subject that a practitioner should never refuse to meet a legally qualified medical brother in consultation, whatever be their respective ages or attainments. I do not accept this view. For though it is extremely unusual for circumstances to occur which justify refusal, yet they do occur; and while the solace and satisfaction of a consultation should never be withheld from a patient, it is undoubtedly nothing but just to the attendant that he should have a voice in the choice of the consultant. It is not difficult to conceive of circumstances in which the request to meet some individual amounts to an insult, and it should be dealt with as any such occurrence would be in ordinary social life. A temperate statement of the reasons should be given. The patient should be offered a choice of suitable consultants, and, failing acceptance, the ordinary attendant is justified in withdrawing from the case.

Troublesome complications may arise where the consulting medical man has been the ordinary attendant in former times, and is asked again to become so. There is no ethical reason that I know of to

prevent him if he likes; nevertheless he does wisely to decline. It is difficult cordially to resume interrupted relations under such circumstances, and the practitioner who is superseded can hardly do otherwise than feel aggrieved. But what reason can be given to a patient or friends for so doing? Well, this is just one of the conditions in which it is best not to give any reason. It saves much trouble to announce your decision as final, and there let the matter rest. We are too chary of exercising our right to select our patients, which is just as definite as a patient's to select his medical attendant. The assertion of such a right is often received with incredulity, not only by the public generally, but even by medical men themselves. We might stand better with the public if we as a body showed a little less eagerness to acquire patients. The natural man values and runs after what it gives him some trouble to attain, more than what can be picked up without trouble.

Patients and their doctors quarrel sometimes. When such an event happens and a consulting practitioner is asked to attend, what should he do? I think, agree to attend if asked by the displaced attendant, not otherwise. It seems to me that the latter alone can release the consultant from the customary obligation. Very often he would prefer to have his patient in the care of a friendly consultant rather than under the charge of a stranger or active opponent. I am assuming, of course, that the difference has been of such a nature as not to admit of patching up. For many a time it happens that a judicious consultant succeeds in restoring confidence and harmony when both have been shaken. Temper, real or supposed neglect, assumed or actual incompetence may be the reasons alleged for a medical man and his patient to part company, and all call for the strongest possible efforts to find a remedy or prevent a rupture. Alcoholism, on the other hand, stands by itself, and I assert that the medical man who drinks deserves no consideration at anybody's hands. He voluntarily renders himself incapable of fitly fulfilling the moral obligation which he has accepted, and indulges in a vice which may make him a danger rather than a help to the community. Consequently the higher obligation of protecting the weak and helpless supersedes the lower one of protecting or helping a professional brother.

If a medical man drinks and does wrong, let him bear the penalty. Fortunately, medicine is a sober profession.

It has ever been the kindly custom of the medical occupation for its practitioners to help each other to the utmost limits of their ability; to attend not only each other but also their families in illness without fee or reward; to do each other's work in emergencies and during incapacity from sickness, and for the juniors to take the work of seniors at holiday times, or when pressure of work produces some temporary difficulty; nothing has a greater influence in promoting friendliness than the will and capacity to be helpful freely and generously. There is no ethical obligation which should be more fully recognised and acted on than this one. Called to an emergency, the first duty of the medical man is to relieve; the second is to find out the ordinary medical attendant's name and the reason why he is not present, and should no obstacle intervene, to hand over the case to him. I am aware that this is not a view universally accepted, and that there are men who hold and act on the belief that the first comer is the man to take charge of the case. I think, however, that the

course which I have submitted to you as right is approved by the greatest number and the best practitioners. It is in accord with the feeling that medicine is a liberal profession and not a mere self-aggrandising occupation. Of course, the right of the patient to change his doctor must always be borne in mind and his wishes consulted. But in no way should any medical man supersede the usual attendant if he can help it. A man in choosing his medical attendant pays the chosen one a compliment when it is done deliberately; it implies an opinion that he is in some way better than others; and the choice should be respected accordingly. But it is no compliment to be called in on an emergency as the nearest.

Of the obligation to come to the help of a brother practitioner whenever he asks such, I say nothing, for the reason that it is universally admitted, and that neither absence of reward nor the existence of less pressing engagements ever stands in the way of such an appeal being responded to. Right feeling requires that for work done in this way there should follow the same exclusion as after a consultation. A patient seen for a brother practitioner should not be attended by the helping friend, lest the feeling or imputation arise that in apparently doing a kindness, really an injury is inflicted. Some people change their doctors very lightly, and it happens to most men when acting for another to be asked to continue an attendance for themselves; to do so would be a breach of good faith towards the man for whom he acts, who has trusted him as a friend to take his work or otherwise help him. A friend cannot honourably supplant him.

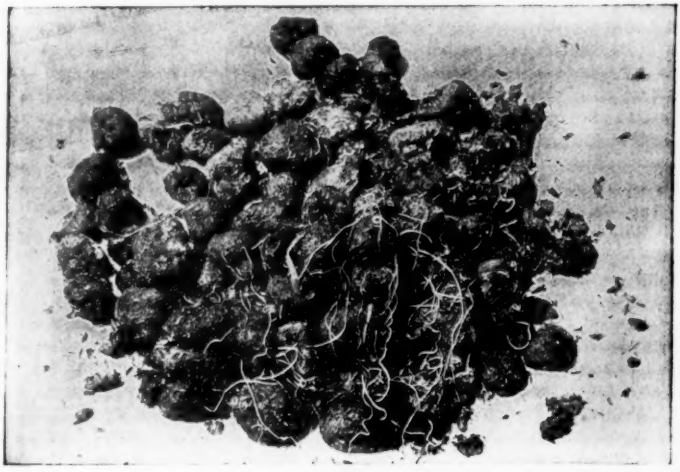
In fairness to each other, medical men should always discourage patients to change. There is no right or title to interfere with any man's freedom to select his own doctor, provided that no obligation has arisen which bars some particular individual medical man; but it is well to use such gentle persuasion as we may, to prevent a passing feeling of irritation resulting in a permanent separation. In this spirit should the members of a liberal profession deal with each other and put away from them all effort at keen business competition. There should be no seeking of personal aggrandisement, regardless of the feelings and interests of others. Competition there ought to be, but it should be the emulation of knowing and doing our business as well or better than our neighbours—of being as kindly and sympathetic to our patients as we can, and of sparing no effort for their comfort and recovery. In an occupation which numbers in the United Kingdom more than 30,000 there will always be some whose code of morality is a loose one, who will go as near the verge of breaking laws as they think they safely can; some with whom obliquity is part of their nature; and yet others who, by original disposition or cultivation, are cantakerous and ill-conditioned fellows. As sensible men we must recognise the fact that, so long as the present constitution of humanity remains the same, we cannot eliminate them; indeed, perhaps we should not long do so even if we could. They are stimulative. This being so, how shall they be dealt with? I say, leave them alone as much as possible; let them fulfil their destiny by themselves. In no respect yield to them because they are objectionable; equally, and above all things, do not imitate them—it would be degrading. They carry within them their punishment, which develops as inevitably as the planets follow their courses. If we had this choice put before us—the alternative of a life of peace and comfort, with an equable mind

and the esteem of our friends and brethren ; or, on the other hand, a life of perpetual disagreement, always a position of offence or defence, with the knowledge that the goodwill and friendship of those of our own occupation are withheld from us, would any sensible man hesitate for a moment which to accept ? Yet a man may so order his life that the latter is the result he attains—often, it may be, by slow and insensible degrees and not of deliberate aforethought.

Is a medical practitioner morally bound to conform his fees to any given standard? It is an opinion largely held that he is. Anyone deviating, either by falling short of or exceeding the custom of his locality, is sure to be subjected to active criticism. I submit to you, however, that every man has a right to value his services. If he fixes his fees above those of his neighbours it is a question between him and his patients whether or not they will accept his estimate of what his professional knowledge and skill are worth ; his fellow-practitioners have no claim to any voice in the matter. We may doubt the wisdom of the man who charges smaller fees than his brethren, and thereby proclaims his opinion that he is worth less. Yet he is equally within his rights, and it would be unjust to submit either to ostracism for what they have elected to do. I would willingly see more inequality of fees than exists, certainly the value of the work of different men varies out of proportion to the difference of reward. Take consultants, for instance ; the conventional fee is the same for the struggling youth as for the man of great experience and knowledge. There is no gradation. I think there is a somewhat general feeling that a change would be to the advantage of everybody. Among general practitioners, again, it would not be an unfair arrangement if it were customary and usual to double fees at a certain age. There are undoubtedly difficulties in the way of introducing such changes ; most changes are difficult. It could be applied only to a limited extent in country practices where the fees are often as much as the people can afford. It probably, also, would involve something less of the personal attachment which usually exists between practitioners and their patients. I am not, however, without hope that an alteration may yet be made in the direction I have indicated, and perhaps rather by slow evolution than by a rapid revolution. But I trust that the members of the medical profession will never take the false step of attempting to dictate to any one what his fees must be or of refusing recognition to those who may deviate from ordinary custom.

Are there circumstances which ought to prohibit a medical practitioner from competing for a vacant paid appointment ? A medical man leaves a locality or dies, and his practice is bought by another ; a partner holds appointments and resigns them ; is there any reason why any one else should not compete with the successor to the practice ? I venture to assert that there is not. There is no property in such posts. It would be alike contrary to public interest and to the best traditions of the profession that an effort should be made to have it created, even by custom. We ought not to think badly of any man who elects to contest any such vacancy because he does so. Even in the case of a necessitous widow who has sold a practice and receives payment for appointments, it must be held as an act of goodwill and charity on the part of an eligible candidate if he declines to compete for vacancies. Again, the same question arises in the event of a man being unjustly dismissed. A Board or committee may seek to impose

THE UNIQUE CLAIMS OF MOLASSINE MEAL PROVED.



Photograph of a portion of the manure from "IRENE" before being fed with Molassine Meal.

It is a common thing for horse-owners and stock-feeders to write to the Molassine Co., Ltd., pointing out how much better some other foods are from an analytical standpoint than Molassine Meal.

The reply is, that **it is not what an animal eats, but what he digests,** that is of service. If horse-owners and others would but examine the manure in their stables, they would often find that a large proportion of the food given to animals passed through in an undigested state, and that its money value might just as well have been thrown away. This represents a serious loss during the course of a year, and the intelligent stock-feeder should give it his careful attention.

The photograph represents manure from "Irene," before feeding on Molassine Meal, and it will be seen that it contains a large proportion of oats and beans which have come from the animal just as they were eaten.

The photograph shows that the oats and beans had begun to germinate, and distinct growths of oats and beans are to be seen, showing clearly that on account of the low vitality of the animal, fermentation and other stomach troubles had set up, which affected the digestive organs and made them incapable of performing their proper functions.

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Photograph of Manure from "IRENE" after feeding with Molassine Meal.

This photograph shows manure some weeks after "Irene" had been fed on Molassine Meal, and after it had lain sufficient time for germination to take place in case there had been any undigested grain pass through. It is quite free of any cereals and is perfectly healthy and inodorous, showing that Molassine Meal has had its usual effect upon the stomach and digestive organs, and had brought the animal to a perfectly healthy condition, **and able, as we claim, to obtain the full amount of nutriment of his entire food,** to the financial benefit of the owner.

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terms or remuneration which are manifestly inequitable. Do these circumstances imply any moral claim to such support from his brethren as is implied in a refusal to endeavour to supersede him? I assert that they do. None of us should aid or abet the doing of injustice. While the quarrelsome or injudicious man has no reason to expect to be supported in opposition to the powers that be, the man who has been dismissed because he has conscientiously done his duty, or the man who resists an effort to reduce his remuneration below what is just recompense for his labour, has the strongest possible grounds for expecting active sympathy and support. I hold that any one disregarding this obligation and acting in a manner contrary to the sense of honourable men has voluntarily renounced his right to be treated as their equal.

It is well for the future of medicine as a profession that its governing body, the General Medical Council, is taking cognisance of breaches of good conduct by those whom it has registered. The Council now punishes and censures acts of which it formerly took no notice. There is hope that it may one day feel able to extend its powers a little further. But even if it does there will still remain minor lapses—acts which may be classed as ungentlemanly, and personal disagreements which it cannot be expected to regulate. For such, we now have admirable tribunals in the Ethical Committees of the Branches and Divisions, to which we may look to maintain in the future a high standard of professional honour. We need not desire for them any more extended powers than they now possess, for a deliberate and ordered expression is a sufficiently powerful agent for the object in view.

In concluding these remarks there comes to me the words of the Psalmist: "Behold how good and how pleasant it is for brethren to dwell together in unity." And if I have in any way directed your thoughts to the means which tend to amity and to good-fellowship and to that kindly charity which thinketh no evil, I shall feel that my purpose has been attained.

(*British Medical Journal.*)

WOUND TREATMENT WITH SPECIAL REFERENCE TO NAIL PUNCTURES OF THE HORSE'S FOOT.

BY L. VANGES, M.D., V.S., FARGO, N.D.

Of all the injuries and wounds which we meet in practice, there are certainly none which are more important than those of the foot of the horse.

The nature of the wounds and the anatomical relation of the various structures which form the foot not only make them particularly interesting from a surgeon's point of view, but their importance from an economic standpoint should never be overlooked.

I am certain that any one of you will agree with me how difficult it sometimes is to explain to a client how it is possible that a simple nail puncture in the frog can produce so much more serious results or cause a horse to be laid up so much longer than the formidable-looking flesh wounds caused by a barbed wire cut. And yet such conditions are often met in practice that through their common occur-

rence, they do not always receive the attention which they certainly deserve. This, however, is in most cases more to be attributed to neglect of owners than to that of the experienced surgeon. From my own observations I feel safe to say that the majority of cases of nail puncture in horses do not become the subject of professional treatment until after either owners or horse-shoers have tried their hand with "burning out" or with the poultice, and neither one of these methods of treatment will tend to lighten the task of the surgeon to whom the case is subsequently entrusted or will be in the least productive of any special benefit to owner or patient.

As the process of healing of wounds of the foot and the conditions by which such healing is modified are identical to those in wounds in general, there seems to be no reason why the principles of modern surgery should not be applicable to the injuries of the foot.

As you all know, the following conditions are essential to the normal process of repair, viz.: (1) Arrest of hæmorrhage. (2) Correct apposition of the parts. (3) Absolute local rest. (4) Absence of foreign bodies and free drainage. (5) Perfect freedom of micro-organisms, asepsis.

In wounds produced by nail puncture, and those are without doubt the most important of the injuries to the foot from a clinical point of view, the two conditions first mentioned may be left out of consideration, while the third in many cases will be fulfilled by the lameness of the horse. The two conditions last mentioned, however, are of great importance, and on their fulfilment depends the subsequent course of the healing process.

Like all other accidental wounds, those produced by nail punctures must be regarded as infected from the beginning, and if we are to have healing under aseptic conditions it will only be through our own efforts, with the possible exception of the rare cases in which a free hæmorrhage has brought about a mechanical sterilisation of the wound canal, and when this sterile condition has been maintained by appropriate wound dressing soon after the injury was received.

If nail punctures were aseptic and could be maintained so, they would but rarely produce serious consequences, and it would matter very little what part of the foot received the traumatism or how deep the puncture, but in too many of our cases we have to face infection and sequelæ following in its wake. For this reason all our efforts in treating this class should be concentrated on the following points: To establish asepsis and maintain it wherever possible, and should infection have taken place to so apply what modern surgery has taught us as to remove, destroy, or overcome the micro-organisms which have gained entrance in the tissues or the effects already produced by them.

It needs not to be pointed out that the earlier those indications are met the better, because only in cases which are presented for treatment immediately after the wound is inflicted may we at all hope to establish aseptic conditions. In such cases the foot involved should be thoroughly cleansed, even before attention is paid to the wound. This may be done by washing and scrubbing with water to which some antiseptic has been added.

This completed, the sole and frog should be trimmed so as to establish a smooth surface and in order to widen the clefts and commissures of the frog and between frogs and bars. This will facilitate

the subsequent disinfection of the parts surrounding the wound, which is done by a liberal flushing with a hot solution of mercuric chloride (1 to 2,000) applied by means of a fountain syringe or some other form of irrigator.

After this the wound may be approached without danger of adding to any infection which may have already taken place. In case the foreign body is still present in the wound it should be removed without causing laceration of the tissues, and after its removal it should be carefully inspected in order to ascertain if parts of it could possibly have remained in the wound.

The next step consists in widening the canal of the wound for so far as it passes through the horny structures of the foot. This must be done with a narrow hoof knife, which should have been sterilised previously, and should extend to the sensitive structures of the foot, but no further. The resulting wound orifice is funnel-shaped, with its apex resting on the sensitive parts.

Assuming that infective material has been carried into the wound by means of the nail, our next step should be aimed at a thorough disinfection of the entire wound canal. If we succeed in this, healing by primary intention will take place, and if we fail we must prepare ourselves to face infection and its possible consequences.

The disinfection of the wound canal is difficult, as it is not always possible to extend the procedure to the bottom of the wound, especially if we have to depend on the syringes commonly in use in veterinary practice.

Owing to the difficulties thus encountered and especially owing to the large number of cases of nail puncture which fell into my hands while in active practice, I was forced to look about for a method and appliances by which a thorough disinfection of the nail wounds could be accomplished and an aseptic condition established.

After trying various syringes and appliances I finally came to use the method which has given me the best results. The apparatus used is a syringe with a thin, flexible, probe-pointed nozzle. The syringe is an all-metal antioxin syringe and the nozzle is made of silver, soft and flexible, about one and a half to two mm. in thickness, and which can be attached to the syringe in the same manner as a hypodermic needle.

As disinfecting agents I have used various ones, but obtained, perhaps, the best results with a 5 per cent. solution of carbolic acid in a mixture of one part of glycerine to five parts of water. Another solution which I can recommended is a 1 per cent. Lugol solution with about 10 per cent. of glycerine, although the latter solution has the disadvantage of slowly attacking the silver of the cannula.

After the parts surrounding the wound are disinfected as before mentioned, the cannula, with the syringe attached, is gently introduced into the canal and the fluid slowly poured into the wound, taking care to avoid great pressure and allowing the fluid to escape along the sides of the cannula as it is forced from the syringe. Disinfection of the wound must be done thoroughly; the operator should not be hasty in his work, and several syringefuls have to be used before the task is accomplished.

In the cases in which the presence of a foreign body is suspected the cannula also serves the purpose of a probe, which has this advantage over the solid instrument, that the probing can be done with a constant

return flow of an antiseptic solution, thereby reducing the danger of mischief produced by forcing septic matter into the depth of the wound.

It is scarcely necessary to say that syringe and cannula are to be thoroughly aseptic.

After having thus attempted to render the wound and its surroundings aseptic our next aim should be to maintain it so; and in this effort we usually experience the greatest difficulty. While the foot can be readily enclosed in suitable dressings, and while those dressings can be kept in the desired position without much trouble, their constant contact with the soil, floors or moisture renders the exclusion of septic matter very difficult.

As long as our patients are kept in clean, dry and well-bedded stables, there always is a probability of success; but when an animal stands in a place covered with manure and moisture, the ordinary dressings soon soak through and wound infection is sure to follow. For this reason we should always insist that our patients be kept in a clean and dry place.

The method of dressing is the same as used in the treatment of wounds in general. A few layers of sterilised gauze are placed over the wound, this is covered with a thick layer of absorbent cotton, while the whole foot is then enclosed in a layer of oakum, the whole being kept in position by means of a roller bandage. In place of the gauze I have often used simple absorbent cotton which had previously been treated with iodine; and this was done as an extra precaution against tetanus, a disease endemic in the locality where I practised. In cases where the dressings are apt to be soiled by moisture I have often placed a layer of oiled muslin under the bandage or have covered the bandage itself with a thick layer of pine tar.

In many cases the bandage was dispensed with and the dressing secured by means of pieces of band iron kept in position by the shoe. This method, however, is not nearly so satisfactory as the former, and was only used when the owner insisted on keeping his horse at work.

As very frequently the wound becomes infected in spite of all our efforts and this infection is not always to be ascertained otherwise than by a local examination, it is well to remove the dressing after forty-eight hours for the purpose of inspecting the wound. If the latter is found to be free of pus, the surrounding parts are again disinfected and the dressing applied as before.

Infected wounds always require far more care than aseptic ones and may, on a clinical basis, be divided into two classes, viz., shallow ones and deep ones. To the former belong those which do not extend in depth beyond the papillary layer, and to the latter those which penetrate the deeper structures, including bone, fatty cushion, tendon or articulation.

In the first class of cases there is always inflammation of the whole superficial layer of the sensitive structures, which is accompanied by exfoliation of the hoof horn, corresponding in extent with the underlying area of inflammation. This may remain localised in the immediate vicinity of the wound or extend for a considerable distance, when the hoof horn becomes undermined, and a sero-purulent discharge makes its appearance at the quarters, when frog or sole are involved, or at the corona when the puncture took place close to the white line.

The indications to be met with in such cases are a removal of the

loosened horny structures and a daily application of the antiseptic wound treatment.

In the majority of cases the removal of the horn is about all that is desired, as it is often found that the initial wound has healed before the condition spoken of is discovered. In some of this class there is a necrotic condition of the outermost layer of the soft structure, while in others a mass of unhealthy granulations is seen after the removal of the exfoliated horn. The necrotic tissue should always be removed, the parts well disinfected with a sublimate solution, after which they may be dusted with an antiseptic drying powder and the ordinary dressing applied.

In case of granulations they may be removed with the curette or be treated with astringent applications. I have often treated them with a 5 per cent. solution of iodine and glycerine. Dressings should be frequently changed as long as the parts remain moist.

When the parts remain dry an oakum protection is all that is required until the hoof horn is of sufficient firmness to withstand the ordinary wear and tear.

The second variety of cases are those which give us the most trouble; they sometimes terminate fatally and quite often give rise to chronic lameness.

One of the most common conditions here is phlegmon of the fatty cushion, and here, of course, all our efforts should be used in establishing free drainage and in the disinfection of the parts. In most cases of this kind the wound should be enlarged in order to make drainage and antisepsis possible. This enlargement will also enable us to explore the wound thoroughly, which is always advisable in order to find and remove any gangrenous tissue which may be present. Should any necrotic tissue be found, it may be removed by means of the sharp spoon or curette.

In the application of antisepsis, the sublimate solution is perhaps the most efficient, but it must be applied in liberal quantities and while quite warm.

In deep punctures of the plantar cushion in which sepsis is present or cannot be avoided I would always recommend that a counter opening be made wherever such is possible, aud that this opening be made large enough so that the wound canal may be flushed from above as well as from below.

In dressing this class of wounds absorbent cotton should be liberally applied and dressings should be changed as often as the quantity of wound discharge may demand.

In cases in which the bone has been injured, free drainage should also be provided for, and in addition any part which has become necrotic should be thoroughly removed by means of a sharp spoon. Thorough disinfection with a sublimate solution is to be daily practised and the dressing described above should be applied in order to protect the parts against additional contamination and with a view of removing the wound's secretions.

In injury of the tendon or bursa, free drainage and antiseptic treatment must ever be provided for, as from a surgical point of view the same indications are to be met with as in the preceding complications. In the experience of the writer, however, septic wounds of the parts mentioned have been frequently followed by necrosis of the tendon, a complication which often required radical operative measures.

Before concluding, a few words in regard to the use of the poultice may be said. Surgeons have now had sufficient time to learn the value of excluding bacteria from healing wounds. In the modern treatment of wounds, not only are efforts made to inhibit germ life by the use of antiseptics, but the wounds are kept free from substances which may furnish nourishment to bacteria, and, before all, the wounds and everything in connection with them are kept as dry as possible, a surgical principle based upon the fact that moisture is imperative to germ life and growth.

In applying poultices, everything favourable to germ life is being provided: the moisture, nourishment, as well as the optimum temperature and in the great majority of cases the bacteria themselves. In an extensive experience with nail wounds in the horse's foot, in which, to some extent, poultices were in use, as well as the antiseptic treatment, I was led to depend entirely upon the latter and to conclude that in all cases in which poultices were used they did more harm than good.

(*American Veterinary Review*, March, 1905.)

Reviews.

FORMULA OF ANTISEPSIS, DISINFECTION AND STERILISATION. By Dr. H. BOCQUILLON LIMOUSIN. Third edition, one vol., 340 pages, 3 francs. Bailliere and Sons, 19, Rue Hautefeuille, Paris.

This work should be exceedingly useful to anyone who has dealings with the subject matter, and is a complete guide to all the numerous preparations of greater or lesser antiseptic value with which the market is flooded, and can be read with profit not only by the practitioners of both human and veterinary medicine from a surgical or medical point of view, but also from a hygienic. In this section there are chapters on disinfection, contagious diseases, disinfection and the sterilisation of both milk and water.

The following table of the contents of the book will give a better idea of it than anything else.

I. Micro-organisms and antiseptics. Microbian diseases. Pathogenic micro-organisms. Means of destroying microbes. Asepsis and aseptics.

II. Antiseptics. Simple chemical antiseptics. Vegetable antiseptics. Compound chemical antiseptics. Therapeutic, antiseptic and toxic equivalents of the chief antiseptics.

III. Application of antiseptics. Antiseptic dressings, antiseptic crayons, antiseptic powders. Antiseptic inhalations and fumigations. Antiseptic subcutaneous injections of vaseline. Antiseptic solutions. Antiseptic ointments. Antiseptic vinegar.

IV. Medical, surgical and obstetrical antiseptics. Antiseptics of the larynx, ears, nose, respiratory organs, mouth, stomach and intestines. Antiseptics in diseases of the skin. Surgical antiseptics. Antiseptics of the eye, urinary and genital organs. Obstetrical antiseptics, disinfection and sterilisation. Methods of disinfection. Personal disinfection. Disinfection of excreta, furniture, clothing, houses, rooms, barracks, hospitals, prisons, slaughter-houses, cattle-markets,

ships and railway waggons. Sterilisation of water, milk and surgical dressings. The municipal disinfecting service of Paris. Disinfection with municipal heat apparatus. House disinfection. Disinfecting stations. Stoves and their control. Disinfection during an epidemic. Disinfection of a large number of persons, animals, or inanimate objects. Cost.

The work is an extremely useful one, and we can strongly recommend its perusal by any one connected with sanitation who can read French.

FORMULA OF NEW DRUGS FOR 1905. By Dr. H. BOCQUILLON LIMOUSIN. One vol., 322 pp., 3 francs. Bailliere and Sons, 19, Rue Hautefeuille, Paris.

Dr. Bocquillon Limousin's little work describes a number of new therapeutic preparations that have not yet found their way into the official pharmacopœia, such as Airol, Benzacetine, Cocodylate of soda, Citrate of silver, Dymal, Ektogan Fluoride of silver, Saponified formol, Holocaine, Iodosalicylate of bismuth, Losoforme, Methylatropine, Narcyl, Oenase, Peroxyde of zinc, Quinoforme, Radium, Slovaine, Tribomophenol, Oropherine, Vasothion, and a large number of foreign plants that have lately been introduced into pharmacy.

The book is carefully edited, each substance being allotted a separate article, which is subdivided into description, composition, therapeutic properties, methods of use and doses, so that the busy practitioner can readily put his hand on the particular information he wants.

Correspondence.

DENTAL CARIES OR INFLAMMATION OF THE PULP CAVITY?

To the Editor of THE VETERINARY JOURNAL.

SIR,—In the current number of THE VETERINARY JOURNAL I notice that the term "dental caries" is loosely applied in two different places and by two different writers. In "A Case of Dental Caries," p. 202, it happens that the figure and the technical description were supplied by myself, so that I might seem to have endorsed the heading, but in the specimen there was not the smallest evidence of dental caries past or present; it was a case of inflammation of the pulp and its concomitant results, and this was purely the consequence of mechanical injury.

"Dental Caries in the Horse," p. 228, is open to the same criticism, though there I had not seen the specimen. There may, or may not, have been true dental caries, but in the text there is not a word which tends to establish its existence. Indeed, the opening sentences in themselves involve loose use of the term, for fœtor of the breath and disease of the bone are spoken of as symptoms of dental caries. Now though these may arise as a remote secondary consequence after the pulp has died, they may equally arise if the death of the pulp has been due to violence or to other causes quite independent of caries. These remarks are not made by way of hair-splitting over the use of words, for, apart from the general desirability of scientific accuracy, it happens that it is of

especial importance that in this particular instance the disease should be properly described. Dental caries, so common in man, is really rare in animals, and the investigation of the causes of their comparative immunity is one of the most promising fields for enquiry as to the ultimate causes of caries in man, so that records in veterinary journals which call things "caries" when they are not accurately such mislead as to the frequency of the disease, and also as to the circumstances of its occurrence. The term should be rigidly limited to the decalcification and subsequent disintegration of the dental tissues proper, accompanied, and perhaps even preceded, by bacterial infection of the dentine or cementum. The practised eye will generally be able to distinguish true dental caries from discolorations due to other causes, but sometimes the discrimination is not certain without microscopical examination. Cases in which excessive wear or mechanical injury has exposed the pulp often bear a superficial resemblance to true dental caries, but as a matter of fact I have myself seen very few instances of it in animals, though I have searched many museums and examined a good many specimens wrongly described as such.

I am,

Yours faithfully,

CHARLES S. TOMES, F.R.S., F.R.C.S.

[Unfortunately, as stated by Mr. Tomes, the term "caries" is somewhat loosely applied in veterinary, as well as in medical, nomenclature, when referring to the diseases of the teeth, and we quite agree that there is a splendid (and almost untrodden) field for research to closely and more exactly differentiate between the ailments to which these particular organs are liable. We are pleased to accept correction at the hands of such a well-known authority.—ED.]

Books and Periodicals, &c., Received.

Johns Hopkins Hospital Bulletin; Modern Medicine; Journal of the Royal Army Medical Corps; Bulletin Vétérinaire; American Veterinary Review; London University Gazette; The Western Veterinarian; Revue Générale de Médecine Vétérinaire; Recueil de Médicine Vétérinaire; La Clinica Vétérinaira; Buletinol Societatio de Sciint (Buchares); Deutsche Tierarztliche Wochenschrift; Rivista de Medicina Veterinaria; Fortschritte der Veterinär Hygiene; Cape Agricultural Journal; Berliner Tierarztliche Wochenschrift; Irish Farming World; Illustrated Kennel News; l'Echo Veterinaire; Le Mois Scientifique; Agricultural Journal of the Cape of Good Hope, March, 1905; Report on Diseases of Cattle, U.S. Dept. of Agriculture, Washington, U.S.A.

Communications, &c., Received.

Captain Pallin; Mr. Alec Towne; Dr. Batten; Dr. McDougall; Mr. R. R. Waghorn; Mr. R. Lewis Green; Dr. Macloner; Capt. Todd; Mr. C. A. Powell; Mr. John Blakeway; Mr. J. W. Pritchard; Mr. R. L. Green; Mr. W. Robertson; Mr. C. Tomes; Lieut. Thompson; Mr. R. A. Stock; Capt. Williams; Major Pallin; Mr. Bennett; Mr. Burr; Mr. G. D. Martin; Mr. A. S. Hodgkins; Mr. T. G. Heatley; Mr. Frank Aulton; Captain Percy Harris; Mr. Routledge; Mr. T. Lambert; Department of Agriculture and Technical Instruction (Ireland); Board of Agriculture.